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A STUDY OF DIET IN RELATION TO HEALTH

DARK ADAPTATION AS AN INDEX OF ADEQUATE VITAMIN A INTAKE

TECHNIQUE AND PRELIMINARY RESULTS

BY

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The power that the eye has of accommodating itself to alterations in illumination is called adaptation. When an individual comes out of bright sunlight into a dimly illuminated room surrounding objects at first are invisible; as adaptation takes place first the general outline and then details of surrounding objects can be clearly seen. The time necessary for adaptation was first measured by Aubert in 1865, and since then has been studied by many observers. The sensitivity of the retina to light increases rapidly during the first ten minutes, a much slower but gradual increase taking place up to forty minutes. At the end of that time the retinal sensitivity to light has increased several thousand times. When a person leaves a darkened room and enters bright sunshine a feeling of dazzle is experienced. Rapid adaptation, however, takes place, sensitivity being enormously reduced in twenty seconds (Adams, 1929; Lythgoe, 1926). Failure of adaptation in reduced light is known as night-blindness, hemeralopia, or nyctalopia.

Association with Vitamin A

The association of night-blindness with diet is not the result of recent advances in knowledge of vitamins, but was accepted and quite extensively studied before vitamins were known or any theory could be advanced as to the nature of the relationship. Defective dark adaptation has always been common among poor people living chiefly on plant foods. Liver has been used as a cure since 1500 B.C., and was recommended for this purpose by Hippocrates (Aykroyd, 1930; Tansley, 1931). The frequent discussion of the defect during the last century shows that it must have been common throughout Europe. The peak of incidence seems to have been during the Lenten fasts in the Danubian and Eastern Mediterranean countries and in Russia. After the description by Bitot in 1863 of xerosis conjunctivae combined with hemeralopia, Netter pointed out that night-blindness can occur without xerosis, and it became evident later that the two are stages in the same disease process, night-blindness coming first (Fridericia and Holm, 1925).

Towards the end of the century Lohmann (1913) wrote: "Malnutrition is the cause of the frequent hemeralopia which occurs in poorhouses and orphan asylums. . . ." "Hemeralopia is rare in England but common in Ireland. . . ." It is clear that it must have been common in England also, earlier in the century at least, since in the report of the medical officer of the Privy Council for 1862, where the health of the unemployed Lancashire cotton operatives is discussed, the passage occurs: "Ulceration of the cornea was inquired for but was only heard of *with special prevalence* . . ." in certain areas. It must therefore have been common at all times, and it would certainly have been preceded and accompanied by night-blindness. (See also Berry, 1886; Forbes, 1811; Snell, 1876; Spicer, 1892.) After the discovery of visual purple it was suggested that this pigment was responsible for vision in low illuminations, a theory which was supported by the demonstration of the bleaching of visual purple in light and the restoration of its colour in darkness. Finally, after the discovery of vitamin A and of its relation to xerophthalmia, experimental study of the eyes of rats showed that in vitamin A deficiency, before xerosis of the conjunctiva is obvious, the restoration of visual purple after bleaching is delayed (Fridericia and Holm, 1925; Holm, 1925). At this stage clinical hemeralopia in the rats was demonstrated by simple tests in a dimly lit room in which the rats had to jump from the corner of a table to reach a shelf of cages.

Practical Aspects

With the rapid improvement in diet in this country since the beginning of the century obvious deficiency diseases, including xerophthalmia, have become more and more uncommon, and interest centres at present on the question of the extent to which further improvements are required. Since the important dietary sources of vitamin A—milk, butter, eggs, liver, carrots, and green vegetables—are, on the whole, relatively expensive foodstuffs, it may be predicted that deficiency, if it is found at all, will be more common among the poorer people. The general conditions of life in this country are not such as to reveal deficient dark adaptation. In towns no one is called upon to do work or get about in light less than adequate even for inefficient dark vision, and even in the country such inefficiency of vision might be completely unnoticed. On the other hand, in certain occupations, particularly motor driving and aviation, efficient visual adaptation to low illuminations and to sudden changes in light intensity is of the greatest importance. A high proportion of flying accidents occur at night, and of

motoring accidents at twilight. Delayed dark adaptation is probably of importance also with reference to dazzling by strong head-lamps (Jeghers, 1937). The problem is therefore not of merely academic interest.

Glare has long been regarded as an important factor in the production of night-blindness. The classical instances are the Brazilian labourers who could see when setting out to work before sunrise but not when returning in the evening in better light (de Gouvea, 1883); the soldiers who became night-blind after a parade in bright sunshine or the painter after painting a white façade (Lohmann, 1913); and the sailors in tropical regions (Forbes, 1811) or the fishermen in Newfoundland or Labrador who go night-blind in the summer unless they drink cod-liver oil (Aykroyd, 1930). These cases afford a clinical parallel to the experimental production of hemeralopia in the rats, to which reference has been made. Since the effect of exposure to bright light in cases of vitamin A deficiency is evidently cumulative and may become severe, it does not appear advisable to use in testing capacity for adaptation any experimental procedure which involves frequent or prolonged bleaching of the visual purple.

Present Investigation

The results to be presented now are preliminary to a study of diet in relation to health which has been begun in Aberdeen and will be carried out at other centres in Scotland and England. Methods similar to those adopted here and other more elaborate methods are in use at many research centres in Denmark, Belgium, the United States, and elsewhere (Edmund and Clemmesen, 1936; Jeans *et al.*, 1937; Jeans and Zentmire, 1934, 1936) for the purpose of discovering the extent to which deficiency of vitamin A exists and the daily requirements of vitamin A to ensure perfect health. It is not suggested that the amount which may be shown to be necessary to ensure the maximum possible efficiency of visual adaptation will necessarily be optimal for all functions, but it can be stated that the requirement for perfect health cannot be less than the amount needed to ensure perfect dark vision.

Assuming that a method has been found which will accurately measure the power of adaptation, the following main questions arise: (1) to what extent do differences in the power of adaptation occur; (2) can adaptation be improved by giving vitamin A; (3) is defective adaptation associated with habitual low intake of vitamin A; (4) is it possible to state with any degree of certainty what regular intake is required to maintain maximal power of adaptation. Only the first two questions will be discussed in this paper. As the investigation proceeds, data will be presented relating to the other two.

Description of Apparatus

Since the test was intended for use chiefly with children and a large series of observations was contemplated, it was necessary to have a method that would be simple and yet accurate, and, as it was proposed to examine children at different centres, the apparatus had to be self-contained and of such a size that it could be easily transported.

The test consists essentially in measuring the power of distinction under different illuminations. White cards devised by Edmund (1936) were used. They have printed on them the letter E in different shades, varying from a letter printed in black to one on which faint grey can just be distinguished against the white background. In the series of nine cards the "contrast" of the letter against the unprinted background decreases in geometrical progression. The "contrast" is measured by the difference between the diffuse reflecting powers of the unprinted and printed parts of the test card, divided by the reflecting power of the unprinted part, and for the successive cards of the series has the following values:

$$1/10^{0};\quad 1/10^{0.25};\quad 1/10^{0.50};\quad 1/10^{0.75};\quad 1/10^{1.00};\quad 1/10^{1.25};\quad 1/10^{1.50};\quad 1/10^{1.75};\quad 1/10^{2.00}.$$

To designate the individual cards the logarithms of the reciprocals of these fractions are used, so that the black letter on the white background corresponds to 0.00 and the faintest letter on the white background is designated 2.00: on this card the grey is so faint that its reflecting power is 99 per cent. of that of the white background. The letter is 63 mm. high; the breadth of the limbs 12 mm. This is slightly larger than the 6/36 letter on a Snellen chart. As the card is placed at a distance of about 40 cm. from the eye, the visual angle is large, so that even in very low illuminations where there is a physiological central scotoma, the letter can still be distinguished. To vary the apparent brightness, Tscherning's photometric glasses are used. These glasses are of a neutral grey tint and are so constructed that they absorb light after a logarithmic scale, No. 1 glasses transmitting 1/10 of the incident light, No. 2 glasses $1/10^{2}$, No. 8 glasses $1/10^{8}$. The two 60-watt lamps used give an illumination on the card of 1,670 metre-candles. When the cards are viewed through the series of Tscherning glasses the apparent illumination is reduced, as in the following table:

Tscherning Glass No.	1	2	3	4	5	6	7	8
Apparent illumination in metre-candles	167	16.7	1.67	0.167	0.0167	0.00167	0.000167	0.0000167

Since this investigation had to begin on a certain date to fit in with other clinical studies, there was not sufficient time to measure the illumination used before starting the clinical work. After the apparatus had been in use for some time it was suspected that the illumination was higher than that used by Edmund (1936), since several subjects were found who could see card 0.50 through the No. 8 glass. Later, physical measurement showed that the illumination was 1,670 metre-candles (8.22 Tscherning) instead of 1,000 metre-candles (8.00 Tscherning) as used by Edmund. Our curves may therefore be expected to be displaced to the right by 0.22 Tscherning relative to those given by Edmund.

ILLUMINATION OF TEST CARDS

The illumination of the test cards was determined as 1,670 metre-candles by comparison with a surface illuminated by a standard 10 candle-power Vernon Harcourt pentane lamp, using a photo-electric cell as a transfer instrument. A copper/copper-oxide photo-electric cell was fitted with a neutral grey glass filter of transmission coefficient 2.07 per cent. (1/48.2). Exposure of the combination of cell and filter in the plane occupied by the test type gave a deflection of 26.7 cm. on a moderately sensitive galvanometer connected to the cell. The cell, without the filter, was then exposed at 54 cm. distance from the pentane lamp (with appropriate diaphragms to eliminate scattered light), and a galvanometer deflection of 26.4 cm. was observed. The intensity of illumination of the test type was therefore:

$$\frac{10}{0.54^{2}} \times \frac{26.7}{26.4} \times 48.2 = 1{,}670 \text{ metre-candles or lux.}$$

Conversion to the Tscherning scale of brightness may be made to an adequate approximation by assuming that 1,000 lux corresponds to Tscherning 8. The illumination of the test cards would therefore be $(\log_{10} 1670 + 5) = 8.22$

Tscherning; or if a reflecting power of 75 per cent. is assumed for the white card the brightness will be 8.09 Tscherning.

EFFECT OF FLUCTUATION OF SUPPLY VOLTAGE DURING TESTS

Fears that fluctuation of the voltage of the electric supply might vitiate the results by causing serious variation in the illumination of the test cards were found to be without foundation. Observations extending over several days with a self-recording galvanometer connected to the photo-electric cell showed that the maximum variation of illumination amounted to ± 15 per cent. (voltage variation ± 5 per cent.): during the forenoon hours, when most of the tests were done, the variation was only ± 7 per cent., or ± 0.03 Tscherning. Apparatus for control of input voltage was therefore unnecessary for the purpose of the tests. The details of construction of the test-cabinet are shown diagrammatically (Figs. 1, 2, 3, and 4).

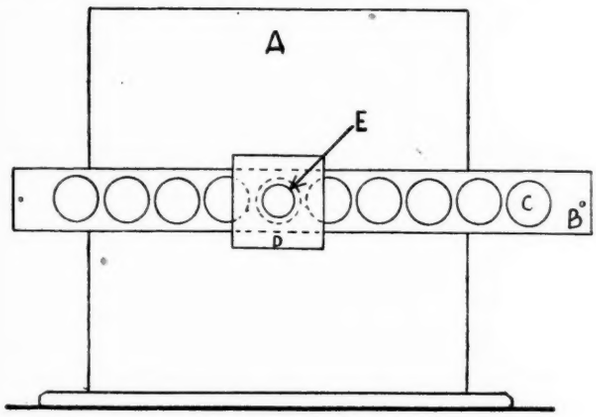

FIG. 1.—Front elevation.

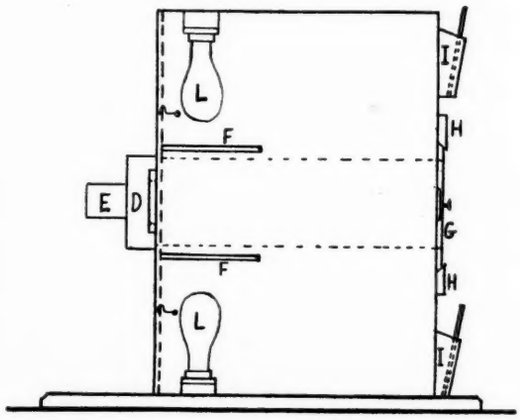

FIG. 3.—Side elevation.

COST OF APPARATUS

	£	s.	d.
Test type	3	1	3
Import duty		13	0
Tscherning photometric glasses (small) ...	6	16	6
Import duty	3	8	3
Box: material and cost of making ...	3	10	8
Total	£17	9	8

Test type from Nyrop and Maag A/S., Copenhagen; Tscherning photometric glasses from Guilbert, Routit et Cie, 114, Rue du Temple, Paris (III); box: home made.

FIGS. 1, 2, 3, and 4.

The cabinet is 19 inches long, 13 inches deep, and 19 inches high. The lettering is as follows:

A: a light-tight box;
B: carrier for the Tscherning glasses (C);
D: wooden holder for the lens carrier;
E: brass eyepiece;
F: wooden tube;
G: Card carrier to hold two cards, sliding in the runners (H); while one card (K) is opposite the opening (J) another card (K^1) can be fitted into the carrier and when the first card (K) is recognized by the patient the carrier is pushed along, causing the second card (K^1) to come opposite the opening (J);
I: two racks to hold the series of cards;
L: two 60-watt translucent electric globes.

Technique

The test is performed in a dark room. Card 0.00 is placed in the carrier G, the card being then opposite the opening J. Card 0.25 is fixed in the other space in the carrier. The slide is pushed along until glass 8 is opposite the eyepiece. The nature of the test is carefully explained to the subject. The cards with the letter E are shown, and the subject is made to understand clearly that no other letter will be shown, and he is required only to say in what direction the E is pointing. Only children capable of doing this have been tested so far. Before beginning the test the subject is kept in the dark room for at least fifteen minutes. If the position of the E is correctly given for the 0.00 card the slide is pushed across so that the 0.25 card is now opposite the opening. When the subject fails to distinguish the direction, the Tscherning glasses holder is pushed along, and glass 7 comes opposite the eyepiece. The subject is then looking at the card that he just failed to see through the darker glass. This procedure is continued until a card value has been found for each of the Tscherning glasses. The values so found can then be shown in graph form. Illustrative examples are given below.

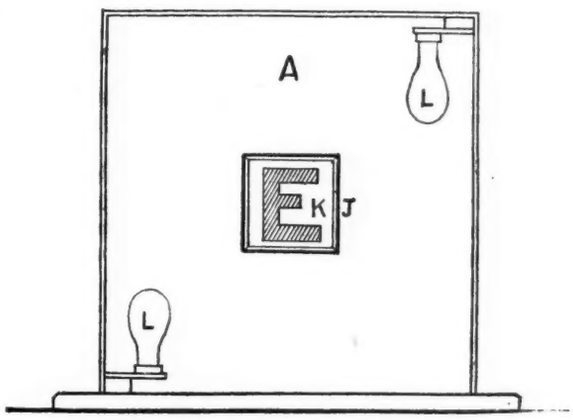

FIG. 2.—Front elevation (face removed).

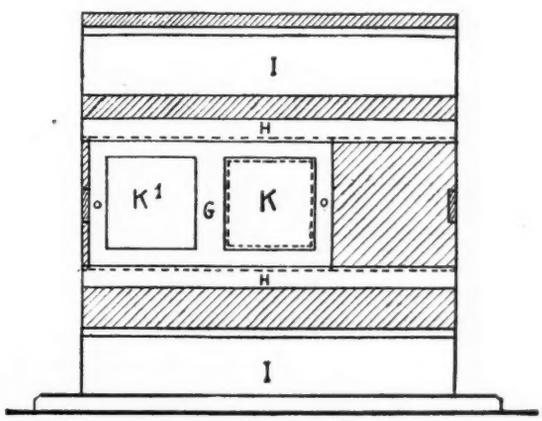

FIG. 4.—Back elevation.

Time Allowed for the Eye to Become Dark Adapted.—The time taken for ten normal individuals to see card 0.00 through glass 8 was as follows:

4	individuals	saw	card	0.00	through glass	8 in 5 minutes.
4	,,	,,	,,	,,	7	,,
1	,,	,,	,,	,,	10	,,
1	,,	,,	,,	,,	12	,,

Twenty normal individuals were kept in darkness for times varying from fifteen to sixty minutes. No appreciable difference could be found in the adaptation curves of these individuals. It can therefore be stated that if an individual be dark-adapted for fifteen minutes the adaptation will be approximately at its upper limit for that individual.

Time Taken to Complete the Test.—The time taken by 100 individuals to complete the test varied from seven to fifteen minutes. By prolonging the test in repeat examinations no higher values could be obtained. About ten minutes for the complete test is, in most cases, adequate.

Factors which may Influence the Test

Pathological eye conditions, such as retinitis pigmentosa and chronic glaucoma, which are known to cause night-blindness were excluded from this investigation. All patients received a complete ophthalmological examination, and only those that had normal visual acuity were examined for dark adaptation. Several of the children wore glasses. This did not appear to have any influence upon the adaptation curve.

Practice was another factor which might have influenced the test. The essentials of the test were clearly demonstrated before actual testing was begun. The method is so simple and easily understood that children of 6 years of age with normal intelligence had no difficulty in understanding what was required. A slight improvement only was found in the adaptation curve of university students upon repeating the examination a week later under similar conditions (Table I; Fig. 5). When a similar experiment

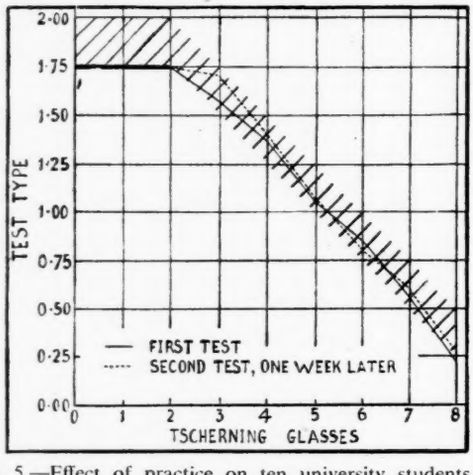

FIG. 5.—Effect of practice on ten university students. The shaded zone represents the upper and lower limits of normal adaptation.

was performed upon seven East End school children a negligible improvement was noted through glass 7 only. This improvement could quite easily be accounted for by the fact that these children were examined on the two occasions on the same forenoon and kept in the dark from the beginning of the first until the end of the second test. The first test was started on the first subject ten minutes after entering the dark room, and an even greater improvement in the adaptation curve might have been expected from increase in dark adaptation. It can therefore be stated that in our experience practice has little or no influence on the accuracy of the test.

Normal Power of Distinction

The individuals who have been examined number 130. The majority of them have been tested twice; about fifty have been examined three or four times. These preliminary studies include ten university students, twenty mill girls, twenty industrial school boys, and twenty-three children of employed and unemployed working-class

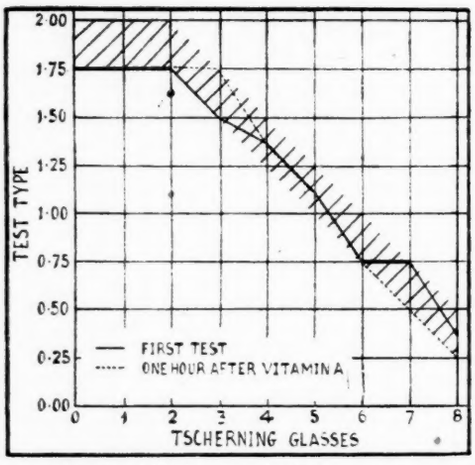

FIG. 6.—Effect of 16,000 units of vitamin A on two university students. The shaded zone represents the upper and lower limits of normal adaptation.

parents, for whom the average results are shown in the tables and graphs. After completion of the first test a single dose of 16,000 units of vitamin A, as halibut-liver oil,* was given to two of the university students and to all of the other subjects, and a second test made one hour afterwards. It will be seen that little improvement fol-

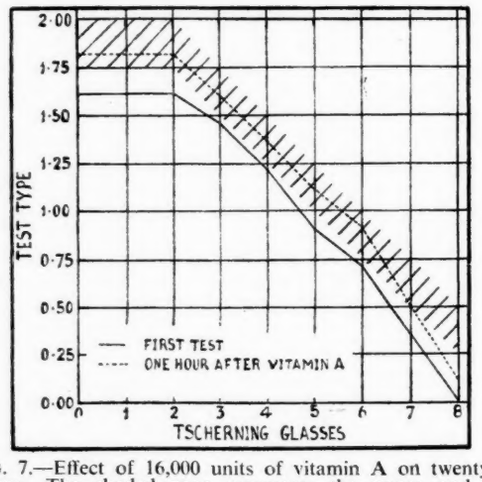

FIG. 7.—Effect of 16,000 units of vitamin A on twenty mill workers. The shaded zone represents the upper and lower limits of normal adaptation.

lowed the taking of vitamin A in the case of the university students (Fig. 6), but a definite improvement occurred in all other cases (Figs. 7 and 8). A similar dose of vitamin A was given on each working day and each school day for a fortnight to those of the mill workers who gave unusually poor first curves and to the elementary school children. The mill girls showed a dramatic improvement at the end of the fortnight, but the elementary school children little improvement beyond that produced by the single dose, except at the two ends of the scale, where

* The capsules of halibut-liver oil used were kindly supplied, without charge, by Messrs. Crookes, to whom we express our thanks. Stated value, 8,000 international units per capsule.

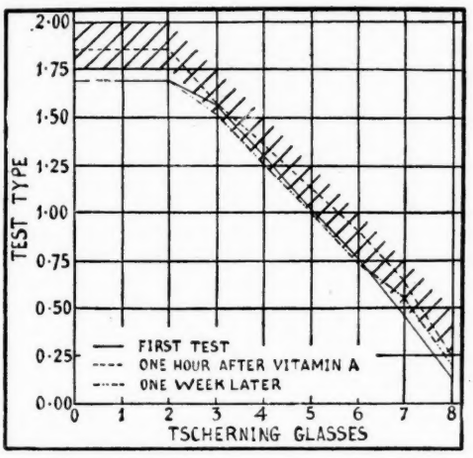

FIG. 8.—Effect of vitamin A on twenty industrial schoolboys. The shaded zone represents the upper and lower limits of normal adaptation.

the improvement was definite (Fig. 9). On testing these children again, a fortnight after stopping the vitamin A, a slight decrease in adaptation was found, but not to the level of the first test.

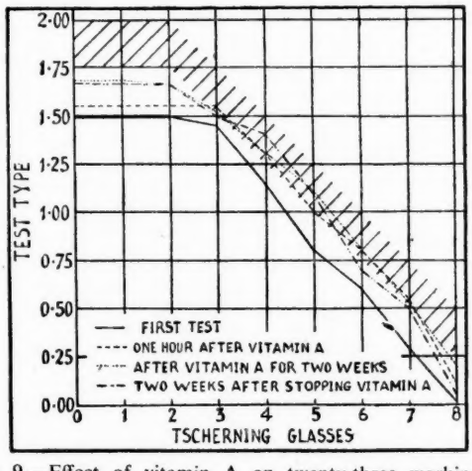

FIG. 9.—Effect of vitamin A on twenty-three working-class children. The shaded zone represents the upper and lower limits of normal adaptation.

It may therefore be tentatively suggested that the performance of the university students—and of other adults of similar class, tested but not here recorded, who gave similar results—is such as to be unaffected by increase in vitamin A intake, and is therefore optimal. A large proportion of the other subjects did not attain this standard, and these, without exception, improved after administration of vitamin A. On the basis of these results it appears that any subject giving an initial curve below the following may be expected to respond to vitamin A:

Tscherning Glass No. ..	8	7	6	5	4	3	2
Test card	0.25	0.50	0.75	1.00	1.25	1.50	1.75

It also appears that the most perfect curve that can be expected will be:

Tscherning Glass No. ..	8	7	6	5	4	3	2
Test card	0.50	0.75	1.00	1.25	1.50	1.75	2.00

These limits are represented in the graphs by the shaded area.

A point that may be of practical importance is that administration of vitamin A very definitely affects not only the vision at minimum illumination (glasses 8 and 7) but also the power of distinction at an illumination equivalent approximately to twilight (glass 4), and even at the highest illumination and in daylight.

TABLE I.—*Ten university students, aged from* 18 *to* 21 *years*

Test	Tscherning Glass No. ..	8	7	6	5	4	3	2
A	Test card	0.22	0.57	0.85	1.05	1.37	1.57	1.75
B	„ „	0.27	0.60	0.80	1.07	1.40	1.70	1.75

A, first test ; B, repeat test one week later.

TABLE II.—*Two university students*

Test	Tscherning Glass No. ..	8	7	6	5	4	3
A	Test card	0.37	0.75	0.75	1.12	1.37	1.50
B	„ „	0.25	0.50	0.75	1.12	1.37	1.75

A, first test ; B, one hour after 16,000 units of vitamin A.

TABLE III.—*Twenty girls employed in a cloth mill, aged from* 15 *to* 24 *years*

Test	Tscherning Glass No. ..	8	7	6	5	4	3	2
A	Test card	0.01	0.35	0.72	0.91	1.22	1.47	1.61
B	„ „	0.12	0.50	0.92	1.12	1.37	1.60	1.83

A, first test ; B, one hour after 16,000 units of vitamin A.

TABLE IV.—*Three selected cases from the above series who showed an abnormally low adaptation curve*

Test	Tscherning Glass No. ..	8	7	6	5	4	3	2
A	Test card	—	0.18	0.50	0.75	1.16	1.41	1.58
B	„ „	0.00	0.50	0.83	1.16	1.33	1.58	1.83

A, first test ; B, after 16,000 units vitamin A on working days for two weeks.

TABLE V.—*Twenty industrial school boys aged from* 12 *to* 16 *years ; average age* 14

Test	Tscherning Glass No. ..	8	7	6	5	4	3	2
A	Test card	0.14	0.47	0.76	1.02	1.31	1.56	1.68
B	„ „	0.25	0.65	0.90	1.13	1.36	1.57	1.85
C	„ „	0.20	0.56	0.74	1.00	1.26	1.52	1.68

A, first test ; B, one hour after 16,000 units vitamin A ; C, repeat test one week later.

TABLE VI.—*Twenty-three working-class children, aged* 10 *to* 13 *years*

Test	Tscherning Glass No.	8	7	6	5	4	3	2
A	Test card	0.01	0.29	0.60	0.80	1.14	1.45	1.50
B	„ „	0.12	0.55	0.80	1.00	1.30	1.55	1.55
C	„ „	0.20	0.53	0.80	1.11	1.30	1.52	1.66
D	„ „	0.05	0.50	0.70	1.10	1.40	1.50	1.66

A, first test ; B, one hour after 16,000 units vitamin A ; C, vitamin A for two weeks ; D, two weeks later.

Summary

The estimation of power of dark adaptation by means of Edmund's hemeralopia test type and Tscherning photometric glass is described and preliminary results presented.

A limit is shown below which all subjects react with improved adaptation to administration of vitamin A. Those

whose first performance is above this limit give no response to vitamin A.

The test is sufficiently simple to be applied to intelligent children of 6 years, so short that it is suitable for serial examinations, and the results are unaffected by practice.

We have pleasure in acknowledging the co-operation of Dr. I. Leitch and Mr. D. Lubbock in organizing and carrying through this investigation.

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MODERN METHODS OF TREATMENT OF CLUB-FOOT*

BY

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It is very flattering but slightly uncomfortable for one who is not an orthopaedic surgeon to be invited to open a discussion at an orthopaedic meeting. However, in the present interesting but undeveloped state of surgery it is probably useful for someone to work at right angles to the accepted lines of specialization, limiting his cases by their age rather than by the system of the body that is affected. So, taking advantage of my position as an amateur orthopaedist, I will start with the platitude that before beginning to treat a condition it is of advantage to decide what that condition actually is. In the case of talipes I believe that this can be done.

The Cause of Talipes

The teaching at present is that the cause of talipes is unknown. I believe, on the contrary, that it is possible to establish beyond doubt the existence of a definite category of congenital deformities due to mechanical causes, and that the classical "talipes equino-varus" is the middle range of a certain series of these deformities. It has been an interesting task working out the limits and possibilities of this category, and I have given elsewhere a summary of the evidence I have collected on the subject (1936). The result has been to convince me that these congenital deformities of the feet are only understood in all their degrees of severity and all their complications and variations when looked at in this light; and that this understanding is a not entirely negligible help to their treatment.

* Read in opening a discussion in the Section of Orthopaedics, including Treatment of Fractures, at the Annual Meeting of the British Medical Association, Belfast, 1937.

It is interesting to examine the causes that prevent the general recognition of what I believe to be an important and definite pathological category. First among the difficulties comes the complication of the argument. Even to state it properly would be a long day's work, and no one could possibly imagine a busy surgeon devoting a day to listening to it. No journal would publish such a statement except in a form compressed to the verge of unintelligibility; a book on the subject might have a sale of a dozen copies; and meetings of this sort are in their hurry a poor substitute for the leisurely courts of argument of the mediaeval schoolmen.

Then the mental process employed is one that is almost entirely neglected in medicine. We have become used to depending on the fruitful and valuable experimental method, in which we produce artificially certain happenings, observe them, and draw conclusions. But there is another method used in science. No one can play experiments on the planets, but yet we know a good deal about them. We have learnt it by reasoning out what would happen were a certain hypothesis true, and comparing these results of abstract thought with what actually does happen.

It is on this second plan that I have tried to investigate the group of congenital deformities to which I consider talipes to belong; and it is because of its unfamiliarity in medicine that very few of my colleagues seem to see the line of argument or admit its strength. The reason for using it is that it is notoriously difficult to interfere in the processes of gestation without wrecking it. I can think of certain experiments that would confirm my results, but to me they appear simply unnecessary cruelty. And, after all, the Chinese have done some fairly relevant experiments on the female human foot. Shortly, the argument is that if one works out in the abstract what would be the consequences of certain things going wrong in the delicate correlation between the growing foetus and its expanding surroundings, one can deduce a series of deformities exactly duplicated over a period of years in the outpatient department of any children's hospital.

Certain stock objections to this theory are made, usually with a kind of hint that the objector could easily think of more, and stronger ones, if it were worth his while. They all seem to me to show a failure to grasp what the hypothesis attacked actually is. For instance, Middleton (1934) says that the negative is proved once for all by the occurrence of talipes in foetuses 3 months old. I believe that compression can begin its work when the foetus is two millimetres long. Burns and Ellis (1937), remarking that there are many cogent arguments against it, give as a sample of them that in the early days of pregnancy the foetus can move freely within the uterus. I have been unable to find any work illuminating this point, but granted the freedom of movement to be as great as it is usually thought to be, this freedom seems a curious argument against the possibility of displacement. And, anyhow, it is no part of the hypothesis that the displaced feet have ever been in normal position; the probability is all the other way. If any one really wants to attack my hypothesis, here are some of the main lines of argument which have to be explained away.

1. The position of the normal foetus before birth.—I believe the drawings of the foetus in textbooks of obstetrics to be inaccurate in certain very important points.

2. The position and range of movement of the feet in the newborn infant.

3. The occurrence of "pressure dimples"; a most interesting line of argument.—Their variations according to degrees of pressure, and normal or abnormal positions of the limbs, seem

to me to be a conclusive proof of the argument. And finally there is their absence in arthrogryposis, a condition I believe to be due to increased hydraulic pressure.

4. Mutual deformities, where two deformed parts that have been pressed together fit into each other like the die and the coin stamped by it.

5. The correspondence of shape of the feet with the position of the joints of the legs, in the different types of talipes.—A variation on this argument is the difference between the feet in double talipes, which I believe to be due to compression (not necessarily abnormally high compression) in a cross-legged position. The invariable difference between the degree of deformity in the feet is just what would correspond to the greater pressure on the outer leg.

6. The variation of the states of the joints and muscles with the degree of pressure as shown by the severity of the deformity and the extent of the dimpling.—The compression theory does not call for any new pathological process of spontaneous muscular degeneration to explain this; it merely assumes that the tissues affected behave as they are known to behave after birth in similar circumstances of pressure and immobility.

7. The much greater frequency and severity of moulding of the feet as compared with moulding of the hands.—This would be expected, as the feet are so much less sheltered.

8. The very complicated but to me satisfactory explanation of arthrogryposis in terms of hydraulic pressure, with its strong confirmation from a disease of sheep.

9. A new confirmation from brain surgery that I have just thought of.—In that syndrome of lumbar spina bifida and talipes which I believe to arise from pressure before the spinal cord has formed, it is well known that hydrocephalus very often occurs. All the cases which develop it have a peculiar deformity of the medulla and upper part of the spinal cord, exactly as if the brain had been squeezed out of the foramen magnum like tooth-paste out of a tube (Russell and Donald 1935). This interferes with the circulation of the cerebro-spinal fluid, and so causes hydrocephalus. It is hardly necessary to point out that, given mechanical pressure on the foetal skull, one would expect this very effect.

Treatment

MANIPULATION

It is curious how much of the present surgical practice can be upset by a simple statement of the aims of treatment. If one states the platitude that one is trying to obtain the normal range of movement of an infant's foot it means that the talipes foot is not corrected until it will go up with the slightest pressure into full calcaneo-valgus—that is to say, till the back of the little toe touches the outer side of the leg. Anything less means imperfect reduction of the deformity, though I have before pointed out that all the classic methods of treatment stop when a range of movement rather less than that of the adult foot has been obtained.

The second crucial point about manipulation is that this full correction (note that it is not an "over-correction") must be obtained at the first manipulation, and that it is gained by a final compression of the whole tarsus as the foot is squeezed against the leg. This primary violent compression of the tarsus has an effect totally different from that of the gradual "coaxing" pulling round of the foot that is at present taught. When the foot is slowly pulled round it gives at its weakest point, the junction of the tarsus and the metatarsus, leaving almost unaffected the centre of the deformity, where the strong bony block below the tibia is left bent and tilted to the curve of the inner concavity of the uterus that has originally moulded it.

I know from experience that of these two principles of manipulation the ambition of gaining full calcaneo-valgus will be accepted by very few people, and the gaining of it at the first manipulation by fewer still. But I am convinced that in them is the essence of the matter.

Finally, it is this same forcing up of the foot into calcaneo-valgus that is the one and only manipulation necessary in the after-treatment. The more intelligent mothers can be taught to do it, but it is extremely difficult to get trained masseuses to carry it out. Without exception they explain that it will "spoil the arch of the foot," and persist in a curious variety of manœuvres which they have been taught, and which seem to me completely useless. After eighteen months or so it usually becomes impossible to push the foot up completely, but a range of movement up to 45 degrees above the horizontal should be kept permanently.

SPLINTING

Once more I beg leave to indulge in a platitude: it is that function is more important in any disability than structure. By correcting the position of the foot and keeping it at rest structure alone is treated. To correct function, the two most important divisions of which are the muscle balance of the foot and the mental impression of how it should be used, it is necessary to allow (and even to stimulate) movement in the corrected position. The classic methods of splinting talipes ignore function. But even in dealing with structure they appear to be inefficient: none of them hold the foot corrected in relation to the body as a whole, though it is on that relation that its proper use depends.

My present model of splint, about the twelfth of its line, is fairly well known. It depends on the mechanical principle that it is possible to control the position of one foot by means of the other. I could easily design one that would be more efficient mechanically, but it would be much more expensive, and would be even less efficiently used. To get the full valgus position that is essential I pack up under the anterior and outer part of the foot with layers of thick adhesive felt. The elastic pressure gained by this is very efficient in moulding the foot; but I have never seen it applied in my way by anyone else. Points in applying it are:

1. Bandage each foot separately. I have been rather depressed by seeing an illustration in a recent book showing a foot being bandaged in with the cross-bar in position (Burns and Ellis, 1937).

2. Fasten the sole-plate first, with the foot packed up in such a manner that the leg-piece projects outward away from the leg. Then when this in its turn is bandaged, it pulls the foot into valgus. I believe it is impossible to overdo this valgus position.

3. If there is a normal foot arrange it in the normal position, pointing outwards from the sagittal plane about 20 degrees. The talipes feet should be arranged to point more outwards, into the "Chaplin position" (here, for the first time, is a true over-correction).

4. Do not be alarmed by a fair amount of reactionary swelling after the first violent manipulation. I have never seen any trouble from this.

5. Never cease the splinting because of pressure sores or skin irritation. Both are rare, neither is important; but if a half-corrected foot is set free it will become far more obstinate than if it had never been touched. (Compare the results of putting on plaster-of-Paris at irregular intervals.) If a baby with simple talipes is put in splints in the first few weeks, full correction and subsidence of reactionary swelling should be attained by the age of 4 or 5 months. Then the sticking-plaster can be left off, and the child supplied with night boots of the same pattern. If the mother carries out instructions and pushes the feet up three times a day to full

calcaneo-valgus there should be no further trouble. I have often found that children treated in this way learn to walk earlier than their normal brothers.

OPERATIONS

The correction of the deformity by moulding with the splint is only possible while the bones are so soft that they will yield before an amount of pressure that the skin can bear without sloughing. On cases which have passed this stage I have for some time been operating according to principles that go flatly against the usually accepted teaching. Sir Robert Jones, for instance, says that as much correction as possible should be gained by wrenching and plaster (that is to say, by stretching the soft parts) before touching the bones; and then that as little as possible should be removed. Now it seems to me that a foot that has been wrenched, or one in which the soft parts have been cut or shifted, is in a state of tension that tends towards relapse. Stretched fibrous tissue and, even more, scar tissue produced by cutting tendons and ligaments, when once left free contract with force and persistency, reproducing the original deformity in a more intractable form. But bone, when once its shape is changed, has no such elastic recoil. In consequence I have been acting on the principle that the soft parts should be left untouched and unstretched, while enough bone is removed to allow the foot to be brought into about the degree of calcaneo-valgus possible to the civilized adult. The situation of the bone removed depends on seeing the deformity as I have described it; it is in a quite different place from the ordinary wedge resection of the tarsus, which has such a deservedly bad name. A most important and usually overlooked part of the deformity is that the external malleolus is too far from the ground, and bone must be removed to let this down to its proper position as well as to allow the foot to be straightened. It might be called a "crescent resection" of the tarsus, the base of the wedge removed being of this shape.

The results I have obtained with this operation have modified my opinion, gained from experience of other methods, that the use of open operations in this condition was to repair the effects of other open operations. I am not as sure of its value as I am of that of the splint I have described, but I am inclined to think the principle sound. If anyone should wish to try it the main points to remember are to go up as high as possible in front of the ankle, and not to be afraid of overdoing the valgus by removing the outer part of the os calcis.

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N. Fastuline (*J. Medical (Ukraine)*, 1937, **7**, 1, p. 75) has investigated the bacterial flora of the air at different altitudes in the Caucasian Mountains. He used Mickel's tubes fitted with Janet's syringes. Each test was carried out with the filtrate of 200 litres of air. The mountain air was found to contain saprophytes and no bacteriae of faecal origin. Above 10,000 feet there was a predominance of mycobacteriae over bacteriae. Among the mycobacteriae the author found penicillium and mucor, among the pigmented cocci *Sarcina lutea*, *Micrococcus roseus*, *Micrococcus citreus*, and *Sarcina rosea*, and among the bacilli *Bacterium mycoides*, *Bacterium subtilis*, and *Bacterium mesentericus*.

MODERN METHODS OF TREATMENT OF CLUB-FOOT*

BY

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In the past the treatment of congenital club-foot has undergone many changes, and in the future it will probably experience others. No generation is ever satisfied with what its forbears have done; this is a right and proper attitude to adopt, otherwise progress or improvement would cease.

Whatever our views as to the pathology or treatment of this deformity, and they are many and varied, it still remains a condition which, however satisfied the surgeon may be, is capable sooner or later of making him appreciate his own limitations; for the orthopaedic surgeon who has treated this deformity over any number of years must time and again have had patients to whose parents he has said, "This child's feet will not relapse," and yet perhaps one, two, or even several years afterwards the patient has been brought to him with the story that the feet began slowly to turn inwards again. You have already listened to an account of the deformity of congenital club-foot in all its aspects. I therefore propose to confine my remarks almost entirely to its treatment.

Some years ago I spent a considerable time upon an investigation of congenital club-foot, and I have not changed my views as to its pathology and aetiology, except that in regard to the former I have realized that the changes in shape of the individual bones of the foot are more marked than I thought at that time.

You probably all know my hypothesis that congenital club-foot is due to a congenital dislocation of the head of the astragalus, that this dislocation is due to an atresia of the socket into which the head of the astragalus normally fits, and that therefore the deformity results from an intrinsic and not an extrinsic cause. I believe this hypothesis is as good as or better than any other, and that it explains more satisfactorily the difficulty we experience in our treatment of the deformity. If the deformity were due entirely to the effects of outside pressure, as is still commonly believed, it should be a simple matter, by exerting a similar pressure in the reverse direction, to correct the deformity and hold it corrected until such time as it was possible for the child to maintain the corrected position by its own muscular power. This I think we must all admit is not in practice what does happen.

From the methods of treatment usually advocated there cannot be any question that in a great many cases the condition is not cured by simple means. We all get cases in which the feet respond to treatment, but we have plenty in which the results are unsatisfactory.

Treatment in the Infant

After a long experience of the method of treatment upon which I was brought up—namely, repeated forcible manipulation of the deformed foot and fixation of the foot in the corrected position with plaster strapping—I have come to the conclusion that it is a poor method in every way when compared with the one advocated by Mr. Denis Browne. It needs frequent repetition several

* Read in opening a discussion in the Section of Orthopaedics, including Treatment of Fractures, at the Annual Meeting of the British Medical Association, Belfast, 1937.

times a week; it hurts and frightens the child; it upsets the relations, who regard it as rather brutal, as in fact it is; it frequently has to be interrupted because the skin of the foot becomes sore; and, last and most important, the use of strapping to maintain position after manipulation is useless once the child becomes of any size, as the patient is able by the contraction of the muscles to pull the foot round in spite of the strapping.

For some time I have used the splint invented by Mr. Denis Browne, and I find it avoids nearly all these troubles. Perhaps, to begin with, several manipulations are necessary to enable the splint to be applied, but thereafter it can be reapplied without these forcible manipulations, which must and do inflict severe trauma to the tissues of the foot, causing swelling and a synovitis of the joints with ultimate stiffness of the foot as a whole. With this splint the child very soon realizes that it is not being hurt, as also does the mother, and instead of a screaming child one has an infant which gives no trouble. It is a splint by which it is easy to apply the correction gradually, and I think it illustrates one of the great principles of orthopaedic surgery which in the present day of operation and impatience to get results we are apt to lose sight of. I know it is unwise to generalize, but I have myself learnt that, speaking generally, haste in the correction of deformities does not pay, either from the view of the patient or from that of the surgeon. This I believe to be the very great merit of Mr. Browne's method of treatment in the infant. The older orthopaedic surgeons before the war were slow in their methods of treating congenital club-foot, but the testimony of some of the sisters who worked with them was that they, as a whole, got better results than do the present generation.

Mr. Browne on former occasions has deprecated the method of repeated forcible manipulations under an anaesthetic and of fixation in plaster of feet which have not responded to early treatment. With this I am in entire agreement. I have spent many hours manipulating such feet, with very indifferent results. His views are that the foot becomes stiffer each time it is manipulated, and that the muscles of the leg, as the results of long periods of fixation, become more and more wasted. This is certainly true, and once the muscles have become really wasted and hardened they never, in my experience, become supple again or properly developed. If, instead, the foot is manipulated once under an anaesthetic to get it plantigrade and this splint is then applied it is extraordinary how, at the end of a week or ten days, it appears to have softened out; also the splint can be reapplied without any trouble, a little more correction being obtained by gradually rotating the foot outwards.

Not only do the adduction and the inversion, which are really one deformity, improve, but in addition that most troublesome feature of congenital club-foot, a small drawn-up heel, appears in many instances to descend without any trouble. The child probably, by pushing against the splint, gradually stretches the tendo Achillis.

I have not, I must confess, employed this method long enough to be able to express an opinion as to whether feet thus treated have less tendency to relapse, but it most certainly is the simplest method to employ in the infant and does not have the disadvantages of the others. I would certainly commend it to any who have not so far employed it.

Many surgeons still hold that when the adduction and inversion portion of the deformity in the infant has been corrected the equinus, if it persists, must be dealt with by a division or elongation of the tendo Achillis. My own view in this respect is that division or elongation of this tendon, however done, does result in considerable muscular wasting, and my experience is that the position of the foot very often cannot be corrected afterwards and that its condition is worse than it was previously.

We have all held that the criterion of cure in a congenital club-foot is "a foot with no adduction or inversion; the presence of a hollow upon the outer side of the foot in the position previously occupied by a bony mass, the head of the astragalus; the ability of the child voluntarily to evert and also dorsiflex the foot well above the right angle." As I have said on a previous occasion, even if this criterion is fully obeyed it cannot be claimed that the deformity will not relapse. I still find this to be true. When a deformity does relapse I believe that the correction which had been obtained before must have been a spurious one, and that the deformity had in fact been hidden by a false correction of the fore part of the foot.

We then come to consider the treatment of those deformities which have not been cured by conservative means and require some form of open or bone operation.

Open Operation

The basis of the open operation which I devised depended upon my hypothesis that the socket for the head of the astragalus was too small to allow the head to enter and articulate with it properly; that in order to enlarge the socket, which was contracted up, it was necessary first to elongate the muscles controlling the alteration in size and then to divide the calcaneo-scaphoid capsule, which was also contracted, thus permitting the bony portions of the socket to take up their normal relation to the head of the astragalus and the other bones of the foot. In theory this seemed a rational operation and one which it would appear to be quite easy to carry out.

Actually in practice it is sometimes impossible to achieve what one has set out to do. I have realized more and more that by the time I have come to consider open operation the shape of the tarsal bones, especially the head of the astragalus, has altered more than I originally appreciated. Sometimes even if the position of the scaphoid and os calcis with relation to the head of the astragalus can be altered satisfactorily it will not remain thus, because it is impossible for bones which do not fit each other to articulate in anything like a normal manner.

I am not in a position to give you the late results regarding the patients upon whom I operated originally and upon whom I probably lavished more care and attention, but I can give you the results of the operations I have done since 1929 in the ordinary routine of hospital work. Some of these patients have quite good feet from a functional point of view, but, as is only reasonable, not so good as the ones treated by conservative methods only. There is a very real danger of the foot becoming valgus and boat-shaped if the open correction is easy. Once such a foot has been produced I know of no method short of an arthrodesis that will remedy it. It is impossible when a valgus foot has been brought about by an open operation to correct the condition subsequently by any forcible manipulation. Some such feet I have had to assist afterwards by means of valgus supports. In two cases I have been compelled to fix the foot in a better position by means of an arthrodesis of

the midtarsal and subastragaloid joints because the foot was in such a bad position.

A great many patients upon whom this open operation has been carried out have returned to me months or even three or four years afterwards with a relapsed and rigid foot. In some few instances one or more manipulations, followed by suitable boots and exercises, seem to have restored the position, but in many resort to a bone operation has been necessary to deal with the deformity.

Another thing noticed in the late results of this operation is that the foot very often is much thicker in the midtarsus, and also there is a tendency for a persistent equinus to remain. This does not seem to cause any disability, but it gives the foot a rather ugly appearance. On the whole I think some feet can be improved by this method, but it appears to be very difficult to be in any way certain which cases will be permanently successful.

What has been found at operation upon those feet that have relapsed subsequent to an open correction? The midtarsal and subastragaloid joints were full of fibrous tissue binding the opposing surfaces of the bones together. This fibrous tissue was so firm that it had to be dissected away before the articular surfaces could be identified. It was quite obvious that subsequent to an open correction there must have been little if any movement in the joints. And clinical examination of feet upon which this operation has been performed has demonstrated that there is scarcely any movement. They are always rather stiff feet.

Repeatedly I have found that the scaphoid and os calcis, which at the time of the open operation had been restored to a satisfactory position so far as one could see, had returned to their original relation with the astragalus—the scaphoid on the inner side of the head and the os calcis tilted beneath it.

Bone Operations

I still believe that when all other methods of treatment have failed an arthrodesis of the subastragaloid and midtarsal joints, removing at the same time sufficient bone at these joints to produce a correction, is the best and most lasting method of treatment. It is an operation which gives a very satisfactory foot in a talipes equino-varus the result of an infantile paralysis, and it is the rational operation to perform in the deformity we are considering. I would even go so far as to say that if there is any doubt about doing an open correction an arthrodesis is probably the better line of treatment. Astragalectomy and other piecemeal bone operations should still be condemned.

To conclude, with regard to the vexed question as to whether there is or is not any inward rotation of the tibia I still hold that the real fault is a failure to correct the deformity of the foot, and that osteotomy is simply the production of one deformity to hide the existence of another.

Issued as a special supplement to *The Countrywoman* of August, 1937, is a report prepared by the Associated Country Women of the World on midwifery services in rural areas throughout the world (30, Baker Street, London, W.1, price 3d.). In a brief discussion of the report Dr. Esther Carling compares the state of affairs in America, where in New York State, for example, only 2 per cent. of deliveries take place outside hospitals, with that in France and other European countries, where the avowed policy is to make it safe and possible to have all babies born in their own homes. A mass of information is compressed into relatively short space in this publication.

INSTINCT AND HYSTERIA*

BY

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The study of mental diseases is not only interesting in itself, as a means of helping the patient medically, but is also of scientific importance in that it opens up the most important avenue to a knowledge of the biology of the healthy man and to an understanding of the nexus between psychological and physical phenomena. Typical psychic mechanisms appear in psychopathology in exaggerated relief and can help in the solution of general biological problems. In the same way the thorough study of general biological laws assists in the more profound understanding of psychic symptoms. Thus, formerly we studied how far hypnoid conditions in hysteria might be compared to the phenomena of the so-called "animal hypnosis." In particular we have compared the motor patterns of hysterical tremors, attacks, stupors, and paralyses to the mechanisms of instinct, the flight and defence reactions which in the animal we call violent motor reactions and the sham-death reflex.

Relation of Hysteria to Animal Instincts

The view that certain hysterical reaction types are in close relationship to animal instincts in general is especially confirmed by the large mass of those types of reaction which centre round the impulsive life. Hysteria originates especially from two main sources: (*a*) the instinct of self-preservation—in the form of fear and anxiety in relation to dangerous situations—and (*b*) from all the emotions and conflicts associated with the sexual life. Wishes, struggles, and disappointments of an erotic nature form the main group of experiences which produce hysteria in ordinary civil life, especially in women. The shock neuroses provide another very large group of hysterical reactions—not, however, in the sense that acute fright syndromes, for example, are merely identical with the hysterical neuroses which develop from the frightening experience or from chronic anxiety, but in the sense that both have a close relation to, and dissolve into, each other.

No agreement as yet has been fully reached on the question of the relation between hysteria and the fright neuroses. Even though the acute fright reactions have often been simply labelled as hysteria in consequence of their unmistakable resemblance thereto, nevertheless a sharp boundary line was drawn between them so long as the fright neuroses were only considered as acute, automatic, evanescent, and spontaneously resolved affective reactions; whereas hysteria, on the contrary, was only spoken of when such acute reactions became secondarily fixed through the purposeful intervention of a "will to sickness," a "gain from sickness." That these difficulties are not due to deficient observation on either one side or the other, but arise from the nature of the problem itself, will soon be apparent.

Reactions to Fright and Danger

What reactions do we observe as a direct result of situations which produce fright and danger? The subjects are shaken, tremulous, irritable, and confused; they

* One of three lectures given at the Tavistock Clinic in April.

mostly complain of physical symptoms—headache, insomnia, misery, palpitation, fatigability, dyspnoea on walking, and excessive reactions to damp and heat. They often exhibit great temperature oscillations and abnormal eruptions, and have exciting and very vivid dreams. An absolutely reliable and ordinary type of man is entirely altered—he is now tremulous, irascible, excited, incapable of concentration, exhibits dyspnoea on walking, palpitation, insomnia and headache, and pyrexia after such exertion as mountain climbing. The patients admit often feeling well, then again they will complain of headache, which is possibly present seeing that at such times they have bloodshot somewhat bulging eyes and a secretion of tears. During such phases they have pyrexia and a pulse rate of 100 or 120.

Similarly Bonhöffer describes the vasomotor symptom-complex as the most characteristic effect of fright. As belonging to the acute psychogenic effects of fright Gaupp mentions severe tremors, tachycardia, hyperaesthesia, fearsome dreams, polyuria, vasomotor secretory symptoms, and delirious clouding of consciousness. Among the survivors of the Messina earthquake in 1908 Stierlin chiefly found insomnia, increased reflexes, and rapid and fluctuating pulse.

We might say, therefore, that disturbance of the vegetative nervous system, with vasomotor manifestations prominent, is the most common feature of fright syndrome. And the resultant general instability of physical and psychic functions offers a favourable soil for the development of various types of hysteria, although only a minority of subjects will become hysterical; in the majority spontaneous recovery will occur after a certain time. In these syndromes a psychic aim is not as yet demonstrable; they are to be considered as purely reflex.

When in those special fright syndromes psychomotor or purely psychic functions are involved, the matter of interpretation is more difficult; above all, in those pictures which resemble the "sham-death reflex" and the "violent motor reaction"—the fright stupor, the twilight states, senseless running away, tremors, and convulsive attacks. According to their external symptomatology these pictures do not differ fundamentally from the usual hysterical reactions which occur in the absence of acute shock as a result of emotional disturbance. Nevertheless we may say that the acute fright syndromes are distinguished to a certain extent from the ordinary hysterical reactions by a strong predominance of vegetative vasomotor signs, by their tendency to more primitive physical effects, convulsions and twilight states, and also to a certain degree by the pure forms of fright stupor.

Is it possible always to differentiate between the fright reactions and hysteria according to their inner psychological structure? Observations on shock psychoses of recent occurrence and of short duration in vigorous men have resulted in the following description: "It was possible on seven occasions to observe directly the awakening from the exceptional condition. The contrast between the twilight state in which the person exhibited theatrical behaviour, which in individual cases went so far as puerilism and nonsense talk, and the awakened state was quite astounding. As a rule it was difficult to realize that this now smart, self-contained, inconspicuous man was the buffoon of the twilight state. The awakening occurred suddenly."

From such observations it follows that even the acute psychic fright syndromes do not produce manifestations so automatic and physiologically limited as to "knock out" the psyche, but that they frequently contain elements which point to an active psychic participation which—therein lies the important point—exhibits a directly purposeful quality. Not only do the precipitating fright experiences often undergo repression or transformation ("The man has fallen over," says a patient in a fright-twilight-state, instead of "He has been killed"), but the fright-twilight-state, also, even in vigorous and brave persons, may in a remarkable manner assume forms we are otherwise accustomed to see in criminals and to regard as signs of crude hysterical deceptive tendencies, bordering on simulation—the Ganser syndrome with its falsely directed theatrical behaviour.

Examples of Fright Reactions

Stierlin also reports numerous examples of similar fright reactions from the earthquake catastrophes of Messina and Valparaiso. A certain incomprehensible composure or even a contrasting cheerfulness with repression of the terrifying experience was the most frequent psychological sequel of the catastrophe. In many cases, however, this tendency to repression proceeded to take the form of puerilism or of a ludicrous pseudo-dementia. "Thus, on the morning of the earthquake at 7 o'clock, a man of prominent position, who together with his family had escaped death, was seen in a nightgown sprinkling the flowers in his garden with a watering-can. Another, a merchant who had lost his house and family on the day of the calamity, was seen on the quay in his nightgown and slippers with a large herring in his hand, laughing to himself." "Another person who had lost his family in the earthquake, and had escaped with nothing more serious than shock, did not appear as though the disaster had made the slightest impression upon him. It seemed to mean nothing to him, although he saw his house in ruins and heard the catastrophe being discussed. He appeared to be delighted, and rode round in his motor car. When anyone spoke to him he was much confused, and kept on laughing. Yet in ordinary circumstances he was a good, sound family man." "After being thrown out of the window by the atmospheric pressure, a 17-year-old youth, as though by a miracle, landed uninjured on a meadow. Without showing the slightest concern for his family, he wanted to assist with rescue work, during which he played the clown. His severe confusional state lasted for more than a week. During the whole of that period he showed no kind of concern for what had happened, and never inquired about his family nor about anyone's safety. He seemed to know nothing about the whole event. One could see him aimlessly wandering about the streets in his shirt-sleeves." "Night after night a 65-year-old bank official ceaselessly called out 'Papa, mamma; Papa, mamma.' He imagined that his physician was a marshal, and addressed his own son as father."

It is scarcely possible to avoid the conclusion that the acute fright reactions often include from the start a tendency to flight from unbearable circumstances into a peculiar state, involving both repression and theatrical behaviour—in other words, the very psychic reactions which are nowadays usually regarded as forming the specific nucleus of hysteria. We shall more readily recognize the close relationship between fright neuroses and hysteria when we remember that both have a common biological origin—namely, the general animal instincts of defence.

How Hysteria and Fright Reactions Differ

Yet we must differentiate between hysteria and the fright reactions. Certainly acute terror (equally chronic

anxiety arising out of acute fear) is one of the most favourable starting-points for hysterical formations. But the fright neurosis remains essentially an *acute* syndrome, whose features are stamped by the severe affect of the moment, and which lasts only throughout the period of affective strain. The purposive factor has not as yet achieved independent expression, but is vaguely inherent in the anxiety-affect in much the same way as the tendency of a drowning person to clutch at a straw may be regarded as belonging to his anxiety-affect. In the case of the true fright neuroses both repression and theatrical behaviour disappear automatically *pari passu* with the after-effects of the acute shock. The patient comes to himself as the clear, energetic person he was previously; and again takes up life at the point where he left it. Most acute fright reactions end in that way. A new factor enters into those fright and anxiety reactions which develop into chronic hysteria. With the gradual return of reflection and composure the patient enters on a transitional phase in which the residua of the acute mechanisms become influenceable by the will, inasmuch as he is able to suppress them entirely or to allow them to develop still further. This is confirmed by my own clinical experience as well as experimentally. If during the return to normal the egotistical wish for a permanent removal from the danger-zone or for material gain secures the upper hand, it may interfere with the subsidence of the affective automatisms and give rise to a fixation. He is still in a position to fall back on a relapse into an acute anxiety, or twilight, state; the slight original tremor of predominantly autonomic origin can be reinforced so as to produce coarse tremors and shaking attacks.

Therefore, if we wish correctly to understand the relationship between hysteria and fright neurosis we must distinguish between two aims: (*a*) the primary aim, the primitive flight or defence tendency inherent in every strong painful affect and which forms the basis of the repressions and theatrical behaviour met with in the acute fright reactions; and (*b*) a secondary aim, which only makes itself felt during the subsidence of the acute affective shock and the return to normal, and which now produces a chronic hysteria out of the acute fright syndrome. It is at this stage that we can speak of hysteria proper. The acute affect, which includes the aim, dominates in the fright neurosis. In hysteria, originating from acute affect or from a chronic fear for one's life, the more lasting aim, which influences and utilizes the residua of affective mechanisms, governs the picture more and more. The former, the fright reaction, is essentially instinctive, created by a momentary, overwhelming situation. The latter, secondary hysteria, is more on the boundary between the instinctive and the rational, and, more than the former, is the product of the entire personality. That is why we are unable to separate the fright neuroses from hysteria, but also cannot identify them with each other.

Physiological Reflex Mechanisms in Fright

Is the acute fright reaction a purely physiological reflex in which the psyche as such does not participate, or does it depend, hysteria-like, on auto-suggestion? According to previous observations, we will answer this question as follows: In the acute pictures of fright physiological reflex mechanisms are just as surely demonstrable as hysteria-like elaborations of experience. The autonomic-vasomotor symptom complex may serve as a characteristic example of the first type, and, psychically speaking, directly includes the disturbance of sleep as well as the affective instability anxiety and depression. Also certain twilight states with predominantly organic features, observed by Bonhöffer, and many epileptic-like convulsive attacks fall into this group. On the other hand, the twilight state of the Ganser type, with its fright-manifestations, best exemplifies the direct psychic elaboration of fright reaction with hysteria-like mechanisms. The direct acute fright syndromes represent varying combinations of these two main factors; frequently they appear inextricably mixed in the same symptom-picture.

It is of significance in considering the relationship between the instincts and the hysterical reactions to note that the "major hysterias" with their richly developed massive symptomatology—for example, reflex mechanisms, violent motor reactions, stupors, paralyses, and twilight states—are commonly associated with situations which conflict strongly with the impulsive life—that is, with the erotic instincts and with the instinct of self-preservation. In the war one saw these massive hysterias develop not only as the result of acute, dramatic fright situations, but still more frequently they developed out of gradually progressive anxiety for one's safety—for example, behind the lines or in a military hospital where there was a dread of further exposure to danger. The reverse is true of such purposive neuroses whose secondary gain is not so directly anchored in the impulsive life—for example, the compensation neuroses of civil life. These are characterized by their diffuse symptomatology, their vagueness, and by the frequent absence of reflex, hypobulic, and hyponoic mechanisms. Only where the impulsive life is closely impinged upon do we come across the primitive instinctive reactions—for example, violent motor reactions and sham-death reflexes.

Hysteria and the Sexual Impulse

Let us now consider the relationship between hysteria and the sexual impulse. One aspect of these relations was emphasized in general medicine, and still more in Freud's psycho-analysis; they were even regarded as the governing principle in the theory of hysteria. As a reaction against his over-emphasis they have at times been understated. In short, it must be admitted that there is an important nexus between hysteria and that instinct, but this relation is not invariable. The sexual impulse only comprises one-half of these relations; the other half, which is just as important, is formed by the hysterical fright and anxiety reactions.

In the development of an individual case of hysteria combinations and anastomoses frequently occur between the sexual impulse and the fright-anxiety group. In neurosis a repressed sexual impulse often manifests itself as anxiety. On the other hand, especially in children, genuine anxiety can accompany sexual excitement. Thus we find hysterical reactions which have long been dormant in the form of an erotic psychic conflict are suddenly released by a fright-producing experience. A woman, who is getting old, enters into a severe state of inner tension and jealousy over the engagement of her younger sister; one day she is terrified in the street by a team of frightened horses, and suddenly exhibits hysterical abasia; she had never before reacted hysterically to fright. And, therefore, one impulse-stimulus can blend with another, so that combined they can produce an hysterical reaction.

Women and girls exhibit sexual hysteria more frequently than men. It would lead us too far astray if we were to give in detail all the erotic conflicts which might give rise to hysteria. Amongst the most frequent we might

mention: an unsuccessful love affair, jealousy arising out of the marriage of a sister, an undesired marriage, fear of pregnancy, difficulties in sexual intercourse, an unhappy marriage. At one moment the physical, at another the psychic side of the sexual impulse is the more hysterogenic.

Constitutional Foundations of Hysteria

For our present thesis the constitutional foundations are more important than individual experiences. Apart from war and compensation hysterias, our observations (which concur with Kräpelin's) show that the majority of hysterias occur round about the age of puberty, and much more frequently in the female sex. As is well known, the age of puberty is the most susceptible period for the release of constitutionally determined anomalies. As a matter of fact, we find an astounding number of constitutional anomalies among our hysterical material: infantilism, which generally manifests with special strength in the field of sex. Our clinical material of the last few years is especially rich in physical asthenia, genital malformations, dysmenorrhoea; and in the psychic field, general childishness, weakness of the sexual impulse, aversion to men, an over-strong psychic fixation on the mother, a generally disturbed pubertal development with retardation, or uneven establishment of the separate manifestations of puberty. In contradistinction to the compulsion neurosis, the signs of sexual infantilism are very frequently found in the hysterias; but the cruder perversions are relatively seldom present. Homosexuality most frequently manifests as an exaggerated and erotically coloured enthusiasm for girl friends, which may again be interpreted as an increased or a prolonged phase of an essentially normal early pubertal phenomenon; it can therefore be considered as only a partial manifestation of the infantilistic disturbances of puberty.

As an example of such a disturbance of pubertal development in hysteria we may mention the following case. A 22-year-old girl, who exhibited bad temper, hysterical twitchings, and an impulse towards self-mutilation, menstruated for the first time in her seventeenth year. Even to this day she has a physical aversion to men, but experiences strong sexual excitement, which, in the manner of young pubescents, she satisfies by fantasy and masturbation. Even now her letters show a mixture of childish naïveté and pathos, a combination of the droll and tragic, characteristic of the "flapper." She said: "If I do not get well father must order my coffin at once, then it will make no difference even if I am damned. Someone may yet come for me. I am forgotten by God and the world. When someone does come, bring mademoiselle's apples to me." She had retained a childish kind of bigotry, and pestered the sensible old local parson with her incessant confessions of all her sins of thought and acts of masturbation. The clergyman well realized that she at one and the same time strove against and gratified her particular impulses in the confessional. Because the clergyman, during confession, was not strict enough with her, she had recourse to a Catholic priest, an alleged exorcist. She soon began to exhibit the usual mixture of adoration and erotism, and, influenced by his suggestions, she rapidly developed into a full-blown hysteric.

Without much difficulty we can perceive how this entire hysterical development of personality, up to the final appearance of twitchings, originated as a result of pubertal arrest, and remains indefinitely fixed in an early pubertal phase. The sexual impulse has retained its earlier structure, and, although lively and urgent, has failed to seek the normal sexual goal. The opposite sex is prudishly rejected. The impulse works itself out, on the one hand, in fantasy and dreams, and, on the other, in masturbation. Her bigotry, too, is nothing more than a tortuous channel by which the impulse finds concrete expression. The constant confessions involve an urgent and continuous preoccupation with sexual matters. After the faulty canalization of the non-adult impulse, it assumes more extravagant religious and semi-erotic forms, and finally, when the affective tension reaches a certain height, culminates in an hysterical motor discharge.

The same thing may happen to the sexually immature woman on marriage. Here also we find, as in early puberty, confused and vaguely compulsive feelings—a combination of disgust and negation with ungratified idealistic yearnings—which oscillate and do not permit of a normal love life, and finally discharge indirectly through the old hysterical instinctive channels. If vital anxiety is added to fright hysteria, then the symptom picture of the more sexually derived hysterias exhibits anger and disappointment together with erotic ecstasy, especially in the form of hysterical attacks and twilight states. There may also be irradiation into the sensory field, involving genital, quasi-genital, or symbolically displaced dysaesthesias.

Such immature women, with the sexual development of a 15-year-old girl, are suddenly faced with the realities of adulthood. That is why the approach of a concrete suitor, who was at first enthusiastically longed for in an idealistic way, or the prospect of marriage, is followed by instinctive defence-reactions, such as convulsions and sham death. Among prostitutes both syndromes—sexual infantilism and a tendency to hysterical reactions—are met with with striking frequency.

Physical infantilism, more often a deficient capacity for love, and exaggerated prudishness and shyness in themselves frequently hinder the attainment of concrete, happy love. Such girls are apt to develop into warped "old maids." On account of their lack of amiability they readily become Cinderellas, and act the part semi-genuinely with their poor affective equipment, martyr-like. "I am a neglected child, no one brings me presents, I never receive justice." She quietly puts up with everything, does not aspire to earthly goods, just requires a modest living, peace, and repose. She finally develops into a pseudo-ascetic bigot, or even exhibits a bitter, rebellious attitude of resentment, involving a permanent warping of the character. Her life is typified by constant friction with brothers, sisters, and parents, expresses itself in little malicious remarks and acts of revenge of an offensive, hysterical nature, lying in bed for weeks, or alarming attacks. Or she may exhibit a sudden dramatic collapse with symptoms of major hysteria, which may occur at a moment such as the engagement of a younger sister. Then once more the perverted impulse shows itself violently as sexual envy, and is discharged in instinctive reactions.

Regression in the Hysteric

Just as the impulsive life of the hysteric is often incompletely developed in a progressive sense, so also it often undergoes regression. Impulsive attitudes proper to childhood continue into adult life, as may often be shown in the relation to the parents. In hysterical individuals, as with many schizophrenics and schizoids, it sometimes happens that a proper resolution of the emotional attachment to the parents and the easy neutral independence of the adult are not attained. With excessive tenderness he remains clinging to his mother. The authority of the father retains its almost god-like quality, so that he

rebels against it violently and yet cannot break away. A 19-year-old youth develops a feeling of paralysis in his arm out of fear of his strict father, who is always urging him to work. In young women one observes hysterias which are wholly directed against the father and the home environment, and attacks which represent stormy impulsive discharges of anxiety and anger against them.

These forms of hysteria constitute a link with the real hysterias of childhood, which partly arise in connexion with the relation to parents or parent-substitutes. In children the relation to the parents is comparable in strength to sexual relations between adults, and is also instinctively derived. Also the close relation of hysterical reactions to fright and anxiety holds good with children as with adults. But there is an important difference—namely, that in children the hysterical forms of expression are generally more closely related to the normal ways of affective discharge than in the case of adults, and, therefore, strong childish reactions to severe painful stimuli merge gradually into what is essentially hysterical. Consequently, in children we more often find hysterias of an episodic, meaningless character which are not rooted in strong impulsive tendencies but arise from transitory momentary affects, imitation, and so on.

Many symptoms of what is called the "hysterical character" are nothing more than the fixed residua of an early pubertal psyche or unfavourable characterological modifications of the same under the altered demands of later life—namely, the characteristic antithesis between coldness and excess of erotic feelings—that is, an overlively and over-idealistic psychosexuality with prudish rejection of the physical aspects of sex, enthusiasm for impressive persons, a preference for what is loud and lively, a theatrical pathos, a taste for brilliant roles, heroic fantasies, the playing with the idea of suicide, enthusiastic self-sacrifice, combined with a naïve, sulky, childish egotism. An immature psyche of this sort has a greater inclination towards impulsive discharges of affect, and especially towards hypobulic mechanisms. The hypobulic phenomena appear partly as circumscribed hysterical outbreaks (especially in the hysterical attack) and partly as permanent stigmata of the so-called "hysterical character" which, on account of its strongly hypobulic nature, we call capricious, in view of the distinctive contrast between stubbornness and exaggerated suggestibility shown therein.

The Effervescent Type

The effervescent type of psyche associated with early pubescence is very impressive and has been much described; but in our experience it is by no means the form most frequently given to hysterical reactions. Hysteria is more common in banal and stunted types, often exhibiting infantile stigmata, both physical and psychic, intellectually weak, annoyingly apathetic, emotionally defective, anxiously shy, fearful and excitable. They comprise the whole army of markedly psychically defective persons, the mental defectives, criminals, and prostitutes, who, not because of a specific mental structure, but simply on account of their deficiency of higher psychic mechanisms, are inclined towards primitive impulsive psychic discharges, which frequently include hysterical reactions. Further, hysterics seldom belong to what is known as the "cold-blooded type," but when they do belong to that group the hysterical reactions which they show are very rich and fully developed. This type is cruel, capricious, dishonest, thievish, completely amoral, unfeelingly egotistical, malicious, and intriguing. Many of these traits have been included in the description of the so-called "hysterical character." It is in point of fact a less common definitely degenerative type bordering on moral imbecility and the schizophrenic group. Furthermore, it is well known that the type of "congenital swindler" is very much inclined to hysterical reactions.

The Age Factor

In general one may say that puberty provides the main occasion for the exhibition of hysterical reactions and developmental retardation. The presence or persistence of early pubertal psychic stigmata most easily gives rise (in addition to the severer forms of psychic defect) to the "hysterical character"—that is, to a consistent tendency for the release of hysterical reactions. Hysteria is above all a reaction-form "of naïve, undeveloped psychic life" Kräpelin); it has its roots in the impulsive life. The nearer a person approaches an archaic psychic level or the more he regresses, the more does his hysteria take on the character of a severe pathological abnormality based on degeneration; and even then only when an extremely severe experience can be excluded. In youth hysterical reactions may betray a markedly degenerate constitution, but not necessarily so.

Why do hysterical cases become increasingly rarer with advancing age? Undoubtedly because in the course of time the slighter anomalies of pubertal development do, on the whole, become adjusted, and because, in general, many varieties of hysteria have no serious abnormal constitutional background, but appear episodically in children and the young as adventitious instinctive reactions to adverse experiences and environment. Kräpelin established this fact when he said that a large proportion of his female hysterics were country girls who, as young servants, had become transplanted into a large city and were not quite equal to the change of environment. Here again one is reminded of infusoria in a pond, which, on approaching a zone unfavourable to life, immediately exhibit "violent motor reactions."

With very severe experiences, such as war or earthquakes, not only the young, but even occasionally normal adults may show panic, hysterical reactions, or shock-neurosis. Thus we may conclude with Hoche that "everyone is potentially an hysteric"; for we are all carriers of archaic patterns which are usually more or less efficiently covered by more recently acquired cultural and characterological strata.

Thus hysterical reactions are to be regarded on the one hand as being congenitally determined, and as stereotyped expressions of life, which appear under common and everyday conditions, but especially at vital crises. Hysteria-like reactions are, on the other hand, also stereotyped responses of human and animal organisms to intolerable experiences, and are thus closely related to healthy psychic life.

The Industrial Welfare Society has arranged a course of three lectures to explain the far-reaching changes in factory law brought about by the new Factories Act. The lectures are being given by Mr. H. Samuels, barrister-at-law, at the headquarters of the society, 14, Hobart Place, Westminster, S.W.1, from 6.30 to 7.45 p.m. on Thursdays, September 16, 23, and 30. The fee for the course is £1 1s. (15s. in the case of member firms). The course will be repeated in Birmingham on Wednesdays, October 6, 13, and 20, at 6.15 p.m., at the English Theatre at the University.

AIDS IN THE DIAGNOSIS AND TREATMENT OF ECTOPIC GESTATION

BY

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The diagnosis of ectopic gestation in all its varieties is notoriously difficult, and for the attainment of some certainty in this it is necessary to evaluate carefully the history, symptoms, and signs. Proper treatment depends on a correct diagnosis, and doubtless there are cases in which the condition is unsuspected and entirely missed. By an error in diagnosis one may unnecessarily be exposing a patient's life to grave risks. It is thus incumbent on one to marshal all facts that may assist in the elucidation of the disease from which the patient may be suffering.

Acute tubal rupture with severe internal haemorrhage and its dramatic sequence of events is known to all. This is the picture of ectopic gestation which the recently qualified doctor has in mind. In actual fact it is surprising how rarely one sees the acute compared with the subacute or chronic (haematocele) type. A proper orientation and perspective of this disease and its common manifestations is required. Shaw (1936) states that "the diagnosis of ectopic gestation, in which localized haematomata are formed, often presents an extremely difficult clinical problem, and a careful interrogation of the patient as to the severity of the pain is always necessary." Cope (1935) refers to Grandin's observation that "the man who suspects every woman of having the condition is the man who is least liable to err in diagnosis." It may be considered that this is an overstatement, but with increasing gynaecological experience one appreciates that it is not so. A mass in the pelvis may be due to many causes, but in considering ectopic gestation the usual mistake made is between this and tubo-ovarian inflammation, an ovarian tumour or an early uterine pregnancy with a small tubo-ovarian swelling (inflammatory or neoplastic). With acute tubal rupture the condition has to be diagnosed from other abdominal catastrophes such as perforation of a hollow viscus. Most gynaecological surgeons will admit that at some time during their careers they have mistaken an ectopic gestation for a threatened abortion.

Pelvic Haematocele

As aids in the diagnosis of pelvic haematocele I wish to stress the importance of certain points in the history and the presence of *pulsation* in one or other vaginal fornix. Cases will be cited as illustrations.

With regard to the history, in something like 30 per cent. (Whitehouse, 1935) of cases there is no definite interruption of the periods, as irregular bleeding makes its appearance at or before the time when the first period following conception becomes due. I have noted that bleeding of an intermittent character may start before the period is expected or it may be coincidental with menstruation. On the other hand this may be delayed for a few days, and then blood loss be continuous for some weeks. One can almost invariably elicit a history of pain in the lower abdomen, present perhaps for one day only but in most cases recurring at intervals and being of a colicky nature. Eventually it may settle down to become a continuous dull or dragging ache. The combination of repeated attacks of pain and bleeding is most significant. Where the haematocele is large the main complaint may be bladder distress.

Pulsation in a Fornix

Writers in the last century were fully aware of this sign. Allbutt (1896) states: "Some authors have enumerated among the symptoms, during the progress of haematocele, an undue pulsation of the arteries in the vagina and cervix uteri." Whitehouse (1935) says that "pulsating vessels are often to be felt." In distinguishing tubal pregnancy from a tubo-ovarian swelling associated with an early uterine pregnancy he says that "the presence of definitely pulsating vessels on the affected side only favours a diagnosis of tubal pregnancy." Contrarily, Munro Kerr (1933) does not attach great importance to this, for he has observed that in inflammatory conditions of the appendages it is also well marked.

I have found pulsation in one or other fornix to be of considerable help in arriving at a correct diagnosis, and I cannot easily reconcile Kerr's statement with what I have experienced. In this part of China (Hong Kong) pelvic infection, due either to gonorrhoea or to septic abortion, is rife, and pelvic abscess is commonly seen. As yet a haematocele has been the finding at operation in every case in which there was pulsation. In some of them the husband has been known to be infected with gonorrhoea.

It is easy to miss the presence of pulsation in a fornix. The tip of the index finger should rest gently in the region of the attachment of the vagina to the cervix. It is there that pulsation is best felt. Only light pressure should be applied, for if it is too firm then the pulsation will be obliterated. For the elicitation of this sign in the right fornix it is preferable to use the left index finger.

ILLUSTRATIVE CASES

Case 1.—This was a six-para aged 31, who had been married twelve years. The husband had a history of gonorrhoea. Previous deliveries were normal, and the last was nine months earlier. There had been one abortion five years previously. The patient complained of abdominal pain followed by bleeding a fortnight before admission. She was still lactating, and had had no periods since her last confinement. On vaginal examination an irregular mass was felt in the left fornix, but the uterus could not be distinguished from it. There was marked pulsation in the left fornix. At laparotomy a pelvic haematocele was found, and it was impossible to identify the left tube and ovary.

Case 2.—A four-para aged 24, married six years, whose last delivery was six months ago. Menstruation commenced two months later, but the subsequent period was a fortnight overdue. Fourteen days after this a severe attack of pain occurred in the left side, followed by continuous bleeding for six weeks. There were three recurrent attacks of acute pain. Abdominal examination disclosed a mass rising out of the pelvis and extending into the left iliac fossa equivalent in size to a sixteen-weeks' pregnancy. Per vaginam, pulsation was felt in the left fornix and an irregular-shaped swelling filled the left half of the pelvis. At operation a large haematocele was found with many intestinal adhesions. The left tube and ovary were not seen.

Case 3.—A four-para aged 33, married twelve years. The husband admitted having had gonorrhoea. Deliveries had been normal except for one abortion. The last confinement was one and a half years ago. Three weeks before admission the patient fainted as the result of a severe attack of abdominal pain. This was followed by continuous bleeding. Whilst lying in the ward prior to examination she was seized with acute abdominal pain. There was no history of menstrual irregularity. On vaginal examination the uterus was found to deviate to the right owing to a mass in the left half of the pelvis. Pulsation was present in the left fornix. At operation a large haematocele was found.

Case 4.—This patient was a nullipara aged 29, who had been married eleven years and whose husband had gonorrhoea. Menstruation had always been irregular, but the last period lasted for only one day instead of the usual week. The day after there was generalized abdominal pain, which recurred during the following week and was accompanied by a profuse blood-stained discharge. On examination the uterus was bulky and retroverted. A mass was felt in the left fornix together with pulsation. At operation a small haematocele was removed. The right ovary was buried in adhesions.

Case 5.—A five-para aged 33, married nine years. The husband had been treated for gonorrhoea. The last delivery was one and a half years ago. Three weeks before admission there was an acute attack of abdominal pain with fainting. Severe bleeding ensued. This continued for eleven days, and was followed by another bout of pain. The condition had been diagnosed as a pelvic abscess and treated conservatively. A mass was found rising out of the pelvis, and per vaginam it was filling most of the cavity. There was marked pulsation in the left fornix. When the abdomen was opened a large haematocele was seen with the appendix adherent to it. An appendicectomy was performed as well as the usual attempt at removal of as much of the blood clot as possible.

Acute Tubal Rupture with Internal Haemorrhage

Even in the acute type of ectopic gestation it is sometimes difficult to be certain of the diagnosis. Particularly is this the case in the Tropics, where patients suffer from severe degrees of anaemia due to conditions other than surgical, such as ankylostomiasis, which give the impression of sudden and excessive blood loss. In doubtful cases I would commend the simple procedure of puncture of the posterior vaginal fornix. Either a lumbar puncture needle or an ordinary wide-bore needle with syringe attached will suffice. The risk of infection is negligible, and perforation of the intestine is minimal. If there is free blood the intestines will float on the surface and so be removed from any danger of puncture by the needle. After cleansing the vaginal vault with dettol the needle is pushed through the posterior fornix into the pouch of Douglas, keeping parallel and as close to the posterior aspect of the cervix as possible. If blood is aspirated freely into the syringe the test is positive for intraperitoneal bleeding. This is a useful means of differentiating between an abdominal catastrophe due to perforation of a hollow viscus and one due to free bleeding into the pelvic cavity, as from an ectopic gestation. In Allbutt's textbook will be found the statement that "in all doubtful cases . . . recourse may be had to an exploring needle or aspirator as recommended by Sir J. Simpson and Professor Braun." In those cases in which there is much blood, and consequently irritation of the inferior surface of the diaphragm, shoulder pain may be present as demonstrated by Cope.

Case 6.—This patient was a four-para aged 34, married sixteen years, whose last pregnancy was fourteen months ago. She had had amenorrhoea for two months. The day before admission she had slight bleeding, with backache and pain in the lower abdomen. Twelve hours later there was a recurrence of bleeding and abdominal pain. The patient was very anaemic and had marked oedema of the legs. There was slight suprapubic rigidity. Per vaginam the uterus was bulky and a mass was protruding through the os. On examination of the stools ankylostoma were found. A general anaesthetic was given and the uterus explored. I was not satisfied that the case was an abortion, since the material removed on curettage lacked the typical appearance of products of conception. The posterior fornix was punctured and blood withdrawn. At laparotomy a right tubal abortion was found. There was one litre of free blood, and some of this was utilized for autotransfusion. Convalescence was uninterrupted. Pathological examination of the uterine contents showed them to be portions of a decidual cast.

The difficulty in this case lay with ankylostomiasis complicating the picture, and an unnecessary abdominal operation on a woman so infected might have proved fatal. Puncture of the posterior fornix revealed the true condition.

Case 7.—A nullipara aged 29, who had been married twelve years, had had vaginal bleeding for eight days after missing one period. Abdominal pain preceded the bleeding by about eight hours. There was a history of shoulder pain. Hypogastric rigidity was present and a small tender swelling was felt in the posterior fornix. The diagnosis was in doubt, since the patient declared that her periods were irregular and often accompanied by pain. The posterior fornix was punctured and blood aspirated. At operation the abdominal cavity contained much blood and a right tubal gestation was present. An autotransfusion of 700 c.cm. of blood was given.

Treatment

Once the diagnosis of ectopic gestation, whatever its type, is made the treatment is operation. No matter how ill or how well the patient appears there should be no alternative to this line of treatment. In all cases, provided there is no infection, the abdominal route should be employed, but where a haematocele has become infected and has developed into a pelvic abscess, then drainage through the posterior vaginal fornix should be adopted. Even if a mistake in diagnosis is made and the condition is found to be a pyosalpinx, it is more prudent to have done what may prove to be an unnecessary operation than allow an ectopic gestation to remain untreated.

Pelvic Haematocele.—In the past palliative treatment was strongly advocated in those cases in which the haematocele was small. It was suggested that the mass was absorbed *in situ*. One has only, at operation, to look carefully at the capsule to realize how thick it is and what a length of time must be required before absorption is complete. I am of the opinion that all cases should be dealt with by operation. The objections to conservative treatment are: (1) the interminable length of convalescence and invalidism before absorption is complete; (2) the persistence of uterine bleeding, either continuous or intermittent, which will induce anaemia; (3) the constant pain, which at times is punctuated by acute attacks; (4) the risk of infection and formation of a pelvic abscess. At operation as much of the blood clot as possible should be removed. If the capsule is found to be adherent to the bowel no attempt should be made to separate it. When the appendix is involved in the mass an appendicectomy should be done. Only in the presence of definite infection or where there is persistent oozing from raw surfaces should a drainage tube be inserted.

Acute Tubal Rupture.—The value of autotransfusion requires emphasis. In some gynaecological clinics it is a routine procedure, and even in the case of fibroids removed by hysterectomy Wallingford (1937) is now conserving the blood and returning it intravenously to the patient. It is obvious that in the presence of infection one would never employ this method. The beneficial result of the transfusion is remarkable in cases which appear moribund, and convalescence is more rapid. Care must be taken to filter the blood through several layers of fine gauze. The "citrate" method has been used in all cases.

Summary

1. In the diagnosis of pelvic haematocele the history of recurrent attacks of low abdominal pain accompanied

by periodic or continuous uterine bleeding is very significant. Pulsation in one or other fornix confirms the diagnosis.

2. In acute tubal rupture if there is doubt as to the presence of free blood in the pelvic cavity, puncture of the posterior fornix is a useful accessory means of diagnosis.

3. Operation should be resorted to in all cases, no matter how small the haematocele. If possible, drainage should be avoided. In the acute case where there is free intraperitoneal bleeding and no infection autotransfusion should be performed during the operation.

I wish to thank the Director of Medical Services for permission to publish these cases and for the clinical facilities he has given me.

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Clinical Memoranda

Prostigmin in Paralytic Ileus

The points of interest in regard to the case reported appear to be: (1) Cracked ice should not be given postoperatively unless there is adequate supervision to ensure that the melted ice is not swallowed. (2) Atropine brakes the action of prostigmin, and is thus better avoided. (3) There was no alteration in the pulse and respiration as the result of the administration of 2.5 mg. of the drug in one injection.

The patient was a man aged 62 weighing 17 stone, who was operated on for intermittent left renal colic. A lower polar aberrant vessel was divided and the pelvi-ureteral junction straightened over an inlying catheter splint. The anaesthetic was 15 c.cm. of a solution of 1 in 1,500 percaine intrathecally, supplemented by gas and oxygen.

No purgatives or enemas were used in the pre-operative preparation, and the bowels had acted normally on the morning of the operation. During the first twenty-four hours following his return to bed nothing was given by the mouth, but four pints of 5 per cent. glucose in normal saline were injected intravenously. Cracked ice was sucked by the patient, and it appeared afterwards that he had swallowed large quantities of the melted ice. This was the probable cause of his subsequent trouble. Flatus was passed within a few hours of his return to bed, but on the second day distension had set in. No relief was obtained from enemas of all varieties, including ox-bile and molasses. Pituitrin had no effect. Acetylcholine was given in 0.1 gramme doses every two hours without result. By the third day regurgitant vomiting had begun, and upper abdominal distension was marked. At noon on this day 5 ampoules, each of 1 c.cm. prostigmin (2.5 mg.) were injected subcutaneously together with 1/100 grain of atropine sulphate. Colic and sweating occurred within thirty minutes, and a fair amount of faeces and flatus was passed. The upper abdominal distension remained, and the action of the drug exhausted itself within fifteen minutes.

By 7 o'clock in the evening distension had increased, though the pulse was stronger. Another 5 c.cm. of prostigmin was injected. This had no effect for twenty minutes. At the end of that time sweating and violent colic commenced, and after a few minutes large quantities of faeces and flatus were passed. The emptying of the bowels continued for some hours, by which time the abdomen was flat. The bowels required some adjustment for the next few days, but convalescence was on the whole uneventful.

Similar fortunate experiences resulting from the use of large single doses of prostigmin have been recorded by some Continental writers, and by W. E. David (*Lancet*, May 11, 1935) in England.

Johannesburg. R. CAMPBELL BEGG.

Parkinsonism following Peripheral Trauma

The case recently reported (Walker, 1937) prompts me to record one other.

In January, 1916, a man aged 27 sustained a gunshot wound in the right forearm while serving in Mesopotamia. He shows the scar of entry about an inch proximal to the wrist-joint, and a two-inch scar about six inches above it, where the bullet was partly removed. A piece of shot is still palpable.

He was sent to India, where he did nothing for twelve months, and was then posted as band storeman and as unfit for active service because he could not use his arm. The ring finger of his right hand had twitched since the injury—the tremors were worse when not inhibited by his active consciousness of them; he had some pain and stiffness (hypertonus) and loss of power in his right hand. In February, 1919, he was demobilized, and this disability was still present.

In July, 1919, he was appointed policeman at Dover Marine Station, which post he held for twelve years. In 1924 the twitching spread to his right hand; he could still write, but only slowly. In 1928 he complained of stiffness and loss of power in his right knee (hypertonus). In 1929 the sensation of "pins and needles" occurred in his hand and arm; about this time his wife noticed that he held himself very stiffly and that his arms were kept in a flexed position. She also stated that they changed houses in that year, and that he used to run on the path uphill to the house, as he found this easier than walking: he tended to drag his foot (hypertonus). The tremors got steadily worse, and because of this he lost his position, as he could neither write nor walk properly. From 1931 to 1934 he was keeper at a level crossing, his wife performing most of his duties. In the latter year he was dismissed owing to incapacity for work.

In 1934 my notes stated that he presented the full clinical picture of the Parkinsonian syndrome: tremors no longer unilateral, blank expression, forward gait and posture, and dry flat monotone. In addition there were signs that neuritis was affecting his radial, ulnar, and median nerves. He is going slowly downhill, and one of his most prominent symptoms is his frequent desire to be moved in bed—a symptom quoted by some authorities.

COMMENTARY

This case shows all the characteristics of Naville and de Morsier (1932).

1. In the interval between the injury and the full development of the Parkinsonian syndrome the injured limb remains weak, painful, and subject to sensory disturbances.

2. Tremors and hypertonus almost always appear on the injured side.

3. The syndrome becomes manifest on the injured side.

4. Mental changes are absent.

I regret to say that my representation and that of the other two doctors who had attended him met with no success from the Ministry of Pensions in 1934.

Ashford, Kent. JOHN C. HODGSON, M.D.

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Reviews

AMERICAN MEDICINE

Physicians and Medical Care. By Esther Lucile Brown. (Pp. 202. 75 cents.) New York: Russell Sage Foundation. 1937.

American Medicine. Expert Testimony Out of Court. Two volumes. (Pp. 1,435; 3.50 dollars the set.) New York: The American Foundation. 1937.

Here are two books dealing with much the same field, the one perhaps unduly small, the other unnecessarily large. The field that they cover is American medical education and the conditions and methods of American medical practice; but it may not be really fair to compare them, in the matter of size at all events, since they differ radically in presentation and object. The smaller book, admirable in format in every respect except in the absence of an index, is by Esther Lucile Brown of the Department of Statistics of the Russell Sage Foundation, and is issued by that Foundation as one of a series of monographs dealing with the present status of certain established or emerging professions in the United States, under the title *Physicians and Medical Care.* The larger work, entitled *American Medicine,* is published in two volumes, not very easy or convenient to handle though well printed, by the American Foundation, with the qualified co-operation of a formidable medical advisory committee, again as one of a series of studies in government. This place of each of these books in its series is of some importance to remember as it has determined to a material degree the method of assembling and presenting the content, as well as the volume of that content itself. Each book deals entirely with American medicine and conditions, without any reference to professional education and conditions of practice elsewhere; nevertheless most of the problems discussed are the same as, or very similar to, those of this country and have a direct and important relationship thereto. Each book, in its particular way, is a valuable contribution to knowledge of fact and formation of opinion which no one interested in the subjects dealt with can well afford to neglect.

In some two hundred easily read pages *Physicians and Medical Care* presents a summary, compact, comprehensive, and fairly complete, of the conditions of medical education and practice in the United States and of the organization of the medical profession in that country. Each section leads up to a description of the present-day situation by the historical method. This approach through history is not at all laboured, but is essential to the understanding of the position to-day, and is illuminating in many ways. It shows how recent and how rapid have been the improvements and reforms which have brought American medicine to a relatively favourable phase, and explains alike some of the crudities which, compared with this country, still seem to remain in its organization and practice, the character of the needs of those who entered the profession at an earlier date, and the relative timidity of outlook in the presence of urgent, peculiar, and difficult problems. With regard to this last it is said that "medicine is one aspect of the general civilization of a country. Its quantity and quality form an index of the level of that civilization. Recent changes in the nature and distribution of health service reflect diverse alterations in the political, economic, and philosophical concepts of our national life." This important truth is often forgotten. The several sections of the book deal with medical education, with professional associations, with the number, distribution, and income of practitioners, with the new forms of medical service now in the experimental stage—whether under the auspices of industry, of hospitals, or of voluntary medical groups—and with the question of providing adequate medical care for all the people either by a health insurance system or by State Medicine. All these matters are presented in an admirable and very effective way.

The method adopted in *American Medicine* offers a complete contrast to this, but, of its kind, the work is almost equally well, if too abundantly, done. The favourite American practice of a questionary sent to a selected and supposedly representative clientele was chosen. The main questions related to the adequacy and availability of medical care, to the general principles which should determine its organization, to the nature of the education which would produce the best supply, to the limits of specialization and the conditions which should control it, to group practice, to the proper place of hospitals, to public health organization, to socialized State Medicine, and to voluntary or compulsory health insurance or to what is called "limited State Medicine" as alternatives thereto. This last envisages "the evolutionary extension of the present functioning of government in the field of health and medical care," and "an integration of the public health services with private practice, an intimate understanding and co-operative development of State Medicine and private medicine, neither of which can apparently reach its ultimate development alone." Some of this is a little vague, and the method by question is itself of doubtful value, but in this inquiry it seems to have been relatively well used. As might be expected the answers were voluminous and of varied value. In the several sections of the book a vast number of extracts from these answers have been set out. This has been done with skill, with impartiality, and in a manner to make them as effectively useful to the inquirer as possible. As is said on behalf of the Governing Committee of the Foundation in an introduction: "Some have worked out their thoughts with labour, have tested them by their experience, subjected them to every challenge they know, and even then offer them tentatively. Others with no great amount of thought have stated emotional preferences with great vehemence." But, as is also said, "the interest and purpose of this report is to illuminate and not to prove. . . . We have been aiming at an analysis of the situation that would take all, and not merely some, of the pertinent factors into account. We have not, at this point, been concerned to find solutions for the problem or for any particular part of it. On the other hand, we have wanted to etch in the present picture fully, and, by demonstrating its complexity, avoid over-simplification in the application of remedies." The result is two volumes of very great interest, offering abundant opportunity for selection; not to be read through, but highly valuable for reference both as containing many wise views and conclusions and as presenting a suggestive picture of American medical practice.

PAIN IN THE KIDNEY

Kidney Pain. Its Causation and Treatment. By J. Leon Jona, D.Sc., M.D., M.S., F.R.A.C.S., M.C.O.G. (Pp. 94; 61 figures. 7s. 6d.) London: J. and A. Churchill. 1937.

The mechanism of kidney pain has been investigated by Dr. Leon Jona, who became interested in the subject by observing the renal pelvis when distended by opaque material on the *x*-ray screen in cases he had under treat-

ment at the Women's Hospital in Melbourne. Dr. Jona was led to his problem by considering that the pelvis of the kidney was a hollow viscus with a nerve supply comparable with that of other organs in the abdomen. He has made numerous observations by pyeloscopy, and by attaching a recording manometer to the ureteric catheter he has been able to measure and record the fluctuations of pressure in the renal pelvis under physiological conditions and under the influence of drugs. He has extended his work to dogs and has compiled a useful introduction to a newly explored field of pathology.

The kidney pelvis and ureter form a system of two sets of hollow chambers, the calyces and infundibulum, and a series of muscular contractile tubes, the collecting tubules, the communicating channels between calyces and infundibulum, and the ureter. The pressure record of the normal renal pelvis shows a series of large waves representing the contractions of the infundibulum, on which are superimposed small waves from contractions of the calyces. The general pressure can be affected by posture and by altering the intra-abdominal pressure; adrenaline and pituitrin cause contraction of the renal pelvis and atropine relaxes it; caffeine contracts, ergot relaxes it. The author has noted various forms of dysfunction of the renal pelvis apart from stone, and suggests methods of treatment. The main classifications are interference with the neuromuscular mechanism, pathological conditions in the urine or urinary tract, reflex effects from organs with related nerve supply, and general diseased states of the body. Spasm of the pelvis and ureter is generally relieved by quinine given in doses of 5 grains three times a day for a few days; atropine may be used in addition. Atony is generally relieved by eserine, strychnine, or morphine. The author has drawn largely from general physiology in putting together this interesting little book.

MEDICAL STATISTICS

Principles of Medical Statistics. By A. Bradford Hill, D.Sc., Ph.D. (Pp. 171; 6s. net.) London: The Lancet, Ltd. 1937.

It is not without significance that both in the foreword, contributed by the Editor of the *Lancet*, in whose columns the subject-matter first appeared, and in the author's preface to this book, the importance of statistical method in *clinical* work is stressed.

That knowledge of and even training in statistical methods are necessary for members of the public health service has long been admitted, but appreciation of the value of arithmetic guided by logic—a fairly accurate definition of statistical method—in clinical work has been slow. There are two reasons for this. The first is that the assembling of clinical or pathological data implies knowledge and experience of a special kind which have involved years of training, and it is natural that the investigator should believe that this, the first step, is the most important, as of course it is. The other reason is that to become an expert statistician, in the technical sense, requires as much training as to become an expert clinician or pathologist. That the particular qualities characterizing the expert physician and the expert statistician might be combined in the same individual is possible; but it is a possibility not likely to be realized very often. If the clinical investigator must choose between clinical and statistical learning, plainly it is his statistical education which must be economized. That, however, does not mean that he can dispense with all statistical knowledge. A Jack of all trades and master of none is no doubt a sorry sight; an even sorrier is he who knows more and more of less and less. The youth who studies French with the ambition of being mistaken for a Frenchman is foolishly optimistic; he who declines to study French at all, on the ground that he will never speak French like a Frenchman, is not a wise man. A knowledge of French considerably short of Voltaire's has its value.

This reflection is relevant to the present subject. Actually, as editors know to their cost, statistical errors are often quite elementary violations of fundamental logical principles, overlooked because of the complexity of the details. In theory nobody needs to go to school with a statistician to learn that in a controlled experiment the "treated" and "untreated" groups should be *in pari materia.* Nobody needs a statistician to tell him that before one draws some inference from a difference between the recorded rates of mortality of a disease, or between the frequency of some necropsy finding in different places or at different times, we must be satisfied that the times and places are fairly comparable. But, in practice, unless one does acquire a certain amount of experience in detecting such errors and some knowledge of the ways in which they may be avoided, these elementary mistakes will continue to be made.

The special merit of Dr. Bradford Hill's book is that he gives much of his space to the illustrations of the kind of mistake which is commonly made. The professional statistician "has no burning desire to be called in as an expert witness at the conclusion of the case for the plaintiff (on a subject-matter he may not fully understand) to say that this is 'significant' and that is, statistically speaking, nonsense. It even requires some equanimity to be unmoved when he is transferred to the dock on a charge of being merely an armchair critic or a confirmed sceptic. In other words, neither party to the transaction is particularly happy." As the author says, there is only one way of escape. "The worker in medical problems, in the field of clinical as well as preventive medicine, must *himself* know something of statistical technique, both in experimental arrangements and in the interpretation of figures."

Dr. Bradford Hill has provided the medical reader with the means of self-instruction. The book is short, lucid, and practical. Anybody who has read it carefully, with a pencil and a piece of paper beside him which he has used, will not be in a position to criticize the methods of Karl Pearson or to enter the lists with Professor R. A. Fisher; but he will certainly have learned how to avoid many errors and how to present the conclusions of his researches in a logical way.

GROUNDWORK OF CLINICAL NEUROLOGY

The Basis of Clinical Neurology. The Anatomy and Physiology of the Nervous System in Their Application to Clinical Neurology. By Samuel Brock, M.D. (Pp. 354; 72 figures. 21s.) London: Baillière, Tindall and Cox. 1937.

"A successful approach to the understanding of disease of the nervous system requires a thorough knowledge of neuro-anatomy and neurophysiology." With this axiom Dr. Samuel Brock introduces his *Basis of Clinical Neurology,* in which he succeeds in compressing the essentials of this knowledge in a very readable form. The chief difficulty in a book of this kind is that the physiology of the nervous system, even more than that of other systems, is constantly developing, and with this growth of knowledge old theories and even some old observations have been put on the scrapheap. Dr. Brock meets this difficulty by giving short summaries of the most recent work on various questions, leaving the student to formu-

late his own views from the divergent and sometimes discordant theories and observations of different workers. This indeed seems to be the most satisfactory method of presenting the subject, and the author has shown wisdom and restraint in leaving questions open when a dogmatic statement or prejudice in favour of one theory might well prove erroneous. This applies especially to such questions as sensation, aphasia and apraxia, and the various problems arising in vascular disease of the brain. In dealing with some subjects which lie on the borderland between physiology and pathology, such as the healing of nerves after division, the causation of trophic ulcers and Charcot joints, and the mechanism of hydrocephalus, to mention only a few, the author's touch is less sure, and statements and suggestions are made which cannot easily be brought into line with the known facts. These subjects, by their nature, do not admit of a simple physiological explanation, and for that reason might well have been omitted from a book of this kind. But when he keeps more strictly to anatomy and physiology little fault can be found with Dr. Brock's book, which shows wide knowledge, care in choice of material, and skill in its presentation.

ELEMENTS OF HYGIENE

A Handbook of Hygiene for Students and Teachers. By Cyril G. Eastwood, B.Sc., M.B., Ch.B., M.R.C.S., L.R.C.P., D.P.H. (Pp. 358; 151 figures. 6s.) London: E. Arnold and Co. 1936.

Dr. Cyril Eastwood's handbook of hygiene is based upon his course of lectures in elementary physiology and hygiene in the University of Leeds and at the City of Leeds Training College, and may therefore justly claim to have in some measure already stood the test of experience. The aim of the author is to maintain the physiological approach from which the advance is made to hygiene and its applications. The six parts of the book are entitled: Biological and Physiological Foundations; Nutrition and Dietetics; Hygiene of Children; Diseases of Children; Hygiene of the School; and Hygiene and Education. The information supplied appears in general well suited to those for whom it is intended, though the ventilating system of the House of Commons is, we think, not one which should be revealed to the simple-minded. In any case it is some years now since the fire in the Clock Tower was replaced by a fan.

Notes on Books

In their small book, *Emanotherapy* (Baillière, Tindall and Cox, 7s. 6d.) Dr. F. HOWARD HUMPHRIS and Dr. LEONARD WILLIAMS set out to convey clear information on a useful therapeutic agent, and to indicate those diseases in which emanotherapy has been found of service. The preface expresses a hope that this book may fill a niche in the literature of little-known remedies, and the authors make acknowledgement to friends on the Continent and in England for help in the attainment of the knowledge which they here summarize.

The late Dr. T. D. Savill's *System of Clinical Medicine* first appeared in 1905 and now reaches its tenth edition under the editorship of Dr. AGNES SAVILL and Dr. E. C. WARNER (Edward Arnold, 28s.). This work differs from current medical textbooks in that it approaches medicine from the point of view of symptomatology, a method which the author believed would be of great help to the senior student and the practitioner. Dr. Savill's original introductory chapter, which gives a clear explanation of his aim, has been retained in this as in every previous edition.

Preparations and Appliances

A CHEAP DEVICE FOR POSTURAL DRAINAGE OF THE LUNGS

Mr. ROBIN PILCHER (University College Hospital) writes: Bedsteads designed for postural drainage may be regarded as an unjustifiable expense in small hospitals where they are rarely required, and for hospital patients continuing postural treatment at home their cost is prohibitive. The device illustrated here offers some of the advantages of the special bedsteads, costs little, and can be made by anyone with a little knowledge of joinery. It consists of two wooden platforms of the same size as the bedstead on which they are to rest. The lower is rigid, the upper is made in two halves hinged to a central transverse bar, and can be raised to the form of a wedge by a block placed beneath it. The block slides in a chamfered slot on the lower platform. The height of the wedge can be varied by using blocks of different sizes or by introducing boards between the block and the transverse bar of the upper platform. This bar projects beyond the edges of the platform, its ends being shaped to form handles by which the platform can be raised for the introduction or removal of the block without disturbing the bedding or the patient. The actual dimensions depend on the size of bedstead to be used, but a useful height for the block is 10 inches. It has been used at this hospital in the treatment of suppurative conditions of the lungs, and within the limitations imposed by its simple structure has given satisfactory results. The first model was made by Mr. H. Roberts, technical assistant to the Surgical Unit, to whom I am also indebted for the drawings.

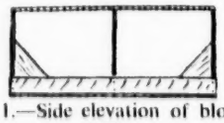

FIG. 1.—Side elevation of block.

FIG. 2.—Side elevation.

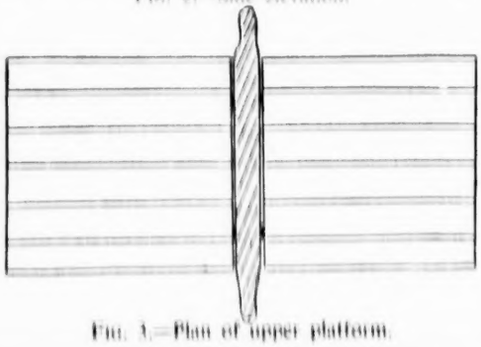

FIG. 3.—Plan of upper platform.

FIG. 4.—The device in use.

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DIETETIC MALNUTRITION

Graham Lusk, in his standard work on *The Science of Nutrition*, defines "nutrition" as "the sum of the processes concerned in the growth, maintenance and repair of the living body as a whole or of its constituent parts." In these days, when the words "nutrition" and "malnutrition" are so loosely used, it is necessary to have this, or some equally good, definition clearly in mind, for then only can it be understood why it is that perfect nutrition is an indispensable condition for the maintenance of health, and why it is that imperfect nutrition (malnutrition) is a dominant factor in the production of ill-health. The recently published and final report of the Mixed Committee of the League of Nations on *The Relation of Nutrition to Health, Agriculture and Economic Policy*[1] does not deal with nutrition as so defined. It is not concerned with the processes involved in nutrition nor with their disturbance in causing imperfect nutrition. It is not concerned with imbalance or excesses of food constituents, with over-eating or with disuse of the adaptive functions. Such causes of imperfect nutrition are outside its scope. Nevertheless, throughout its pages the word "nutrition" is frequently used when "food" is meant and would have served the purpose better.

The report deals, in fact, with the relation of food to nutrition, health, agriculture and economic policy. It is a treatise on "dietetic malnutrition": a state of ill-health widespread in its distribution, having a great variety of symptoms, due usually to poverty but often to ignorance, and preventable only by reorganization of our ways of life—social, agricultural, and economic—so as to ensure for everyone a diet that will satisfy physiological needs. The report is an authoritative and comprehensive contribution to this the most important aspect of the nutrition problem—a problem of world-wide urgency. It deals first with the principles of correct feeding: principles, it may be assumed, well known to readers of this *Journal*. The symptoms of dietetic malnutrition are mentioned here and there throughout its pages, chiefly in those of Part II. They indicate the extent to which the body as a whole and its constituent parts may be disturbed in structure or in function by the habitual use of improperly constituted food; the part of the body affected and the severity of its disturbance depending on the kind and degree of the food fault or faults, the age and sex of the subject, the climatic conditions under which he lives, and the work he has to do. There are symptoms referable to the skin, the bones and teeth, the eyes, ears and nose, the gums, mouth, tongue and pharynx, the gastro-intestinal tract and its associated organs, the endocrine glands, the heart, blood vessels and blood, the nervous and reproductive systems, the lungs, kidneys, and bladder—and, to the mind. Some of these symptoms make up the clinical pictures of disease-entities, known to medicine by special names and catalogued in the *Nomenclature of Diseases* under this or that system of the body. But some, such as subnormal growth in height or weight, poor physique, lack of vitality and activity, chronic fatigue, headache, insomnia or disturbed sleep, irritability, nervousness, apprehension, vague aches and pains, may be the evidence of undefined general ill-health to which no diagnostic label, other than that of malnutrition, can be attached. Further, faulty nutrition, consequent on the habitual use of faulty food, lowers the resistance of the body to infection; these two combining to produce a great variety of maladies.

This much and more may be gleaned from the report, for in following the course of dietetic malnutrition throughout life it provides information of profound interest and importance. Because of the substitution of artificial feeding for mother's milk, infants become subject to gastro-intestinal and pulmonary disease to which they frequently succumb. The mortality rate among infants attending a welfare centre in Chicago was found to be 8.4 per cent. when they were artificially fed, against 0.15 per cent. when they were wholly breast-fed, or fifty-six times greater. Anaemia, imperfect calcification of the developing teeth, imperfect growth of the jaws, rickets, osteoporosis, and poor growth and condition of the body as a whole are other symptoms of malnutrition in infants. In early childhood malformations of the bones, dental defects, and abnormalities of the pharynx are alarmingly common:

> "In a recent inquiry (1931) in London schools it was revealed that among children of 5 years of age there were 67 to 88 per cent. of cases of abnormalities of the bones, 67 to 82 per cent. (according to the gravity of the symptoms) of cases of adenoids, enlarged and septic tonsils, and other disorders of the pharynx, 88 to 93 per cent. having badly formed or decayed teeth. Although there is no proof that all these defects could have been avoided by improved feeding there is good evidence that many would not have developed under such conditions."

There is, however, the best of evidence—that given by Miss Margaret McMillan in her book, *The*

[1] Allen and Unwin, 40, Museum Street, London, W.C.1. 1937. (Pp. 327. Price 7s. 6d.)

Nursery School (1931)—that by proper nurture, which includes perfect nutrition as above defined, all or almost all of them can be avoided. Consequent on malnutrition, children of this age have a lowered resistance to such diseases as measles, scarlet fever, bronchopneumonia, middle-ear disease, and nephritis. "Below the age of 3 years measles is a particularly deadly disease, and there is suggestive, but not conclusive, evidence that the high mortality rate at this and older ages could be reduced by better nutrition of such children." The wise physician and the prudent medical officer of health will be content to act on the suggestive, and not to wait for the conclusive, evidence. Thus it is that "in the early years of school life young children are already 'damaged goods'"—a phrase in which there is the echo of Miss McMillan's voice. "They frequently show evidence of previous defective feeding and lack of care in deformity of the bones of the limbs, chest, and head, in bad dental structure often associated with decay, in deafness to a greater or less degree, in running ears, septic tonsils, and adenoids. . . . These indications of disease are not generally, from the present medical point of view, regarded as evidence of malnutrition . . . although this is probable." They are certainly evidence of malnurture.

"Malnutrition is usually diagnosed in school children on the basis of subnormal growth and weight and general sickly appearance of the child. Nothing is more important than that a new attitude should be adopted towards the problem, for whereas such results of improper feeding as subnormal growth and weight and undefined general ill-health can usually be rapidly improved by better feeding conditions the more chronic conditions due to earlier defective dieting cannot be so easily remedied, but continue to act as a handicap throughout life. . . . Prevention rather than treatment of disease must be more and more emphatically stressed and, so far as this can be procured by better feeding, this ought to be done."

In this connexion attention may be drawn to the Committee's recommendation of the "Oslo breakfast" as a method of improving the nutrition of school children—a recommendation we heartily endorse. There is suggestive evidence, too, that increased tendency to fractures, to rheumatism and rheumatic conditions with their tragic associates—chorea and heart disease—may have a malnutritional basis. So from infancy and childhood through adolescence to adult life malnutrition leaves its trail of morbidity. Amongst adults every fresh inquiry in town and country reveals evidence of patent or latent malnutrition. We may conclude this survey, though leaving much unsaid, with a reference to latent malnutrition of dietetic origin:

"Many of the well recognized 'deficiency diseases'—such as scurvy, rickets, beri-beri, pellagra—are caused by severe, prolonged deficiency of one or other of the essential protective vitamins. Except for rickets they are, fortunately, of relatively rare occurrence in temperate regions, and their full manifestation can usually be prevented by a minimal intake of the appropriate protective factors. Much more common are the latent states of malnutrition which may give rise to no visible disease—states which might be called pre-scurvy, pre-rickets and pre-osteophorosis, pre-pellagra, pre-beri-beri, pre-caries, and the formation of teeth of imperfect architecture. The opportunity that lies before the science of preventive nutritional medicine rests upon the knowledge that these states exist and upon the proof of the necessity for striving after *optimum* nutrition rather than *minimum* nutrition."

There is in all countries, the report assures us, a tendency towards better nutrition, consequent on the use of better food. But the movement is checked and obstructed at certain points, and requires to be directed and accelerated. Such improvement as has taken place is due in part to a better understanding of dietary needs, in part to a general increase of income and prosperity and to ease of transport, and in part to improvements in the methods of production and distribution of agricultural products. But poverty, ignorance and indifference remain formidable obstacles to progress. The disparity between food prices and incomes increases the difficulty experienced by the poorer sections of the community in obtaining an adequate supply of proper foods. Consequently, "millions of people in all parts of the globe are either suffering from inadequate physical development or from disease due to malnutrition or are living in a state of subnormal health which could be improved if they consumed more or different food. That this situation can exist in a world in which agricultural resources are so abundant and the arts of agriculture have been so improved that supply frequently tends to outstrip effective demand remains an outstanding challenge to constructive statesmanship and international co-operation." How the Committee proposes to relieve, if not to resolve, this tragic situation we must leave the reader to learn for himself by a study of this most valuable report.

HAEMOPHILIA

Haemophilia is nowadays one of the most familiar diseases, not only to medical men but also to the general public, which finds it a frequent topic in the daily press and an occasional theme of detective stories. It is therefore interesting to be reminded that Dr. J. C. Otto's "Account of an Haemorrhagic Disposition Existing in Certain Families," the first adequate description of the disease, was published in 1803, and that as late as 1893 A. E. Wright, happily still at work in medicine, brought out the fact that the clotting time of haemophilic blood

was prolonged. These facts are taken from a monograph on the clinical and genetic aspects of haemophilia by Dr. Carroll Birch, based on a personal study of ninety-eight cases and seventy-five families in the neighbourhood of Chicago.[1] It is a fascinating study, from which the most expert will learn something fresh about haemophilia. The series of photographs, portraying haemophiliacs and their lesions at various ages, describes more forcibly than words the relentless tragedy of the disease, and the genealogical charts show how the tragedy continues to be played out and to wring the hearts of successive generations.

The three outstanding findings in haemophilia are said to be a history of habitual and immoderate haemorrhage in males, beginning early in life; prolongation of the coagulation time of the blood; and heredity. The coagulation time of the blood undergoes considerable spontaneous variations, ignorance of which, coupled with premature publication, is responsible for the large numbers of ephemeral cures for haemophilia. The coagulation time tends to be at the highest in the spring. In the worst phases the bleeding time may be prolonged and a few petechiae may appear in the skin, but these phenomena are unusual and the blood platelets and retraction of the clot are normal. Haemorrhage from trauma and haemarthrosis are the characteristic lesions, but spontaneous and visceral haemorrhages, such as epistaxis, haematuria, gastro-intestinal bleeding, and haemorrhage into the central nervous system, occur more often than is generally realized. The prevalent impression that haemophiliacs improve greatly at or after adolescence is erroneous. None but the very mildest cases survive, for 57 per cent. die during the first five years of life and 95 per cent. by the age of 40. In adult life the hazards of the teething process are over, exposure to physical trauma is less after the game-playing period is past, and the patient is usually limited willy-nilly in his activities by crippling deformities.

In this large series of cases and family trees there was no single instance of haemophilia in the female. On the other hand, the statement sometimes made that haemophilia is never transmitted through the male is quite unfounded, and such transmission is shown in eleven of the seventy-five genealogical charts. It is uncommon because few haemophiliacs live long enough to have children. Children of haemophiliacs do not show the defect. Their sons are normal and the descendants of these sons are normal; their daughters, however, all carry the trait, and theoretically 50 per cent. of the daughters' sons should have haemophilia. Thus the only members of a haemophilic family who can safely beget children are the unaffected males. "The life of a haemophiliac and that of his family, especially his mother, are so tragic that it certainly behooves those who may transmit the disease to refrain from having offspring."

[1] *Hemophilia: Clinical and Genetic Aspects.* By Carroll LaFleur Birch, M.D. University of Illinois Press. (2 dollars.)

THE LEAGUE AND HOUSING

The League of Nations, through a commission of its Health Organization, is turning its attention to housing, the importance of which from the League's point of view became evident during the European Conference on Rural Hygiene in 1931. The programme of the commission covers what is rather clumsily described as the "hygiene of the environmental conditions in dwellings," meaning the temperature, freshness, humidity, and movement of the air, also noise, sun exposure, natural and artificial lighting, and population density. Campaigns against air pollution will also be considered, together with methods of water supply and sewage and waste disposal and the administrative and legislative aspects of housing hygiene. National committees have been formed in seven countries, including the United Kingdom, to study the provisions for hygienic housing and to establish co-operation in the international sphere. Two of the committees into which the commission has divided have so far made reports. One of these, under the chairmanship of Dr. G. W. C. Kaye, superintendent of the Physics Department of the National Physical Laboratory, has been investigating the subject of noise from the point of view of housing. A number of details are given of measures which might be recommended for dealing with the noise problem, some of them involving only minor expenditure, such as good internal planning of the dwelling, the choice of the quietest rooms as bedrooms, the cultivation of public opinion regarding the use of powerful wireless sets and other sources of disturbing sounds, and the use of suitable ear stops. Other measures call for expenditure by individuals or public authorities, as, for instance, town planning, with a view to locating dwellings in quiet areas; co-operation between local authorities and industrialists in the lay-out of noisy plant; reduction of noise at the source, as by the use of silencers on motor vehicles; and insulation of dwellings against external noise by double windows, partition walls, resilient floor coverings, and sound-absorbent materials for ventilating ducts and the like. One matter to which the report draws attention is the installation of quiet sanitary appliances. In some modern flats the only sound which comes from the adjoining flat is that of the cisterns, but it can be most penetrating, aggressive, and disturbing. The committee states that experience in many countries has already shown that the measures it advocates may be successfully employed to lessen the nuisance of noise in many situations. Another committee which has reported has been concerned with questions of temperature and air purity in dwellings. This committee, which sat under Dr. C. E. A. Winslow, professor of

public health, Yale School of Medicine, found itself less able to reach conclusive results, largely owing to the fact that on the standards of temperature and humidity very different views are held in different countries, deriving from differences in climate and national custom. Thus British authorities are in favour of a lower range of temperature for the home than their American colleagues, although their views on minimum air movement are the same. Again, while British and American hygienists prefer very slight air movement, in France, due perhaps again to long-standing custom, the aim is to prevent any air movement at all, however slow, in the immediate vicinity of the individual, as British travellers in French trains know to their cost. Again, the standards applied in different countries for the floor space or cubic content of family dwellings vary on account of differences in national customs and standards of living. At present this part of the work does not seem to have got beyond the stage of vague generalities, but the commission is only at the threshold of its task.

RECENT WORK IN BIOCHEMISTRY

Launched five years ago as a comprehensive work under the direction of a distinguished editorial committee and with eminent contributors, the *Annual Review of Biochemistry* was everywhere accorded an enthusiastic welcome by biochemists. It fulfilled a most urgent need in supplying an authoritative account, by experts in their respective fields, of the major contributions made to the progress of the science in the preceding year. With further appearances it has become recognized as the most valuable single volume on biochemistry published in the course of the year. The sixth volume[1] upholds the standard of excellence set by its predecessors. The general editorial policy remains practically unaltered, but if there is any slight tendency to change it is that the several contributors, particularly those dealing with the most rapidly expanding branches, do not attempt quite so much in the way of an all-embracing survey, but rather restrict themselves to those aspects of the newer work with which they have become best acquainted. This has the advantage of making the reviews more authoritative, though it appears at first as if it might lead to some important omissions. This risk is obviated, however, by the policy of changing the personnel of the team from time to time, so that each section can be treated a little differently each year and new topics included. Those sections which progress at a relatively slower rate do not find a place in every volume, but only when they are deemed ripe for survey. Indeed the chief difficulty besetting the editor and his committee lies in respect of the choice of the right time for a particular section of this kind to be introduced. It is a testimony to their judgement and discrimination that no subject of fundamental importance is left for long without finding its rightful place in the *Review*. We are glad to see represented among the timely surveys on this occasion the application of microchemistry to biochemical analysis. Every branch depends to some extent upon advances in analytical methods, and none more so than the field of clinical biochemistry. This new chapter is an invaluable guide to those who constantly seek to improve upon their existing technique. As might be expected, the vitamins and hormones continue to claim a great deal of attention. In the hormone section the adrenal takes a foremost place, and the reviewers observe that ". . . this gland may occupy a position in the whole endocrine system second only in importance to that of the pituitary itself." Professor Marrian and his colleague have done a great service in pointing the way in which hitherto puzzling and apparently conflicting facts and theories of the different investigators regarding the essential activity of the cortical hormone can be brought into harmonious relation with each other. In the vitamin field much attention has been paid to the unravelling of the vitamin B_2 complex, and the nature of its various components is now much clearer. Moreover it has become possible to study vitamin B_1 deficiency on similar lines to those adopted for vitamin C—namely, by determination of the level of its urinary excretion. Enough has already been said to make it clear that no specialist in biochemistry can afford to neglect the opportunity provided by this volume to keep himself abreast of recent developments, no matter in what direction his particular interest lies. Only one final comment remains to be made. The omission of a subject index has now been rectified, but the *Review* still lacks a uniform system of references.

[1] *Annual Review of Biochemistry*. Edited by James Murray Luck. Vol. vi. London: H. K. Lewis and Co. (£1 2s. 6d., postage extra.)

ORAL VACCINATION AGAINST COLDS

The medical profession is judged, as a whole and individually, largely by what it can do for minor maladies. For this reason it is all the more unfortunate that, while immense strides have been made in the treatment of many severe infections, our resources in dealing with more common and apparently trivial infective conditions have been almost stationary for many years. Failure has perhaps been most signal, because it has been notwithstanding considerable effort, in the case of the common cold. It is now known that in at least some colds a filter-passing virus is concerned, but this observation has not led to any useful advance in prevention or treatment. It seems likely that more than one cold virus exists, with the consequence that an attack by one—or any method of artificial immunization in which it might be employed—would not necessarily protect against others. Opinion has been divided for years, and still is, on the importance of bacteria in this connexion; if they are admitted to consideration this brings into the question at least six species, some of which are known to include many antigenically distinct types. It is manifestly impossible to secure specific immunity against such a multitude of potential invaders, and it is therefore not surprising that attempted prophylaxis with bacterial vaccines has had on the whole unconvincing results, although it remains a method which is widely used. There are signs that the injection of bacterial

vaccines may yield place in popularity to their administration by the mouth. For this almost too simple proceeding there is the precedent of Bezredka's antityphoid oral vaccine, and there is a certain amount of experimental evidence that the swallowing of bacteria ordinarily associated with the respiratory tract, such as the pneumococcus, does produce some degree of immunity. This method is strongly advocated by Rockwell *et al.*,[1] whose treated cases, with untreated controls, now amount to over 2,000; their present paper reports a careful study of the last 200 of these. The result of the treatment has throughout been a marked diminution in the frequency of colds and, indeed, in the number of days of illness from all causes. This study appears to have been in progress for nearly five years, and although the composition of the vaccine has been varied a good deal the results appear to have been uniformly on the favourable side. The authors' argument from the theoretical standpoint is not altogether convincing, more particularly when they invoke heterophile antigen as the clue to their success: there is really very little known about the production of resistance to one bacterial species by immunization with another, and although it is to be hoped that this very complex problem may prove capable of solution on some such lines non-specific immunization is still in its earliest infancy so far as any genuine knowledge of its *modus operandi* is concerned. Nevertheless this method seems worthy of more extended study; it has the advantages of safety and simplicity, and can be repeated frequently with little trouble to the patient and none to anyone else, which should at least secure it a full and fair trial.

PHYSICAL ASPECTS OF RADIUM AND RADON THERAPY

An excellent little pamphlet on this subject has been issued by the Health Department of the Australian Commonwealth.[2] It is written by Dr. C. E. Eddy and Mr. T. H. Oddie of the Government *x*-ray and radium laboratories at the University of Melbourne, and in very brief compass epitomizes the main physical principles which are the basis of radium therapy. A section on the physics of radio-activity is followed by a description of the various forms of radium applicator, and this in turn by an account of the properties and method of extraction of radon, and its mounting for therapeutic use. Tables are given showing the rates of growth and decay of radium emanation, and the rise of gamma ray activity after the containers have been filled. Examples of the calculations involved in estimating the content of radon containers are followed by an illustrated description of the methods of filling them. The advantages and disadvantages of radium as compared with radon are briefly and clearly set forth, and the pamphlet ends with an account of the all-important question of gamma-ray dosimetry. A short but comprehensive and representative bibliography of the various questions considered indicates the lines upon which more extensive reading may most profitably be conducted. The foreword, which is contributed by the Director-General of Health, emphasizes the need for physical and clinical co-operation, and the opening paragraph may be quoted with advantage:

> "The efficient practice of radiology is a science in which the skill, judgement, and experience of the clinician require to be supplemented by exact measurements of a physical nature involving the use of delicate physical instruments and the services of a specialized physical laboratory. Only when the application of radiation in the treatment of human disease is placed on a basis of exact scientific measurement can this remedy be safely and effectively administered. Because of this, the radiotherapist must possess a knowledge of the physical aspects, not only in order to understand clearly the technical literature, but to enable him to assess the relative significance of the various therapeutic techniques."

Practising radiotherapists as well as laboratory workers will find this booklet a useful and convenient source of reference; to those who are beginning the study of radiotherapeutics it will form an excellent introduction to some of the fundamental principles upon which a very complicated and difficult study is based.

SULPHANILAMIDE IN URINARY INFECTIONS

In the therapeutic advances of the past few years the urinary tract has had its full share of advantage and more. The ketogenic diet was the first innovation which proved capable of really sterilizing the urinary tract within a few days; it was succeeded shortly by mandelic acid, which proved even more effective and much easier to administer, although the control of urinary *p*H and the nausea sometimes occasioned by medicaments required for reducing this are still practical difficulties of some consequence. If therapeutic progress had stopped here it would still be reckoned as one of the most striking achievements of modern medicine. The contrast is complete between the regular and rapid effect of this treatment and the futility of most of the efforts with urinary antiseptics which preceded it. Now, however, another specific and highly effective remedy has appeared in sulphanilamide. It is known that this drug acts on certain other bacteria besides the haemolytic streptococcus, and the original prontosil has in fact been successfully used more or less empirically for urinary infections for some time past. The first adequate and controlled study of which we are aware of the action of sulphanilamide in urinary infections is now reported by Dr. Meave Kenny[1] and his associates at the British Post-graduate Medical School, and their principal finding is that *Bact. coli* infections can regularly be cured within a few days: this series is composed of forty-six cases, including sixteen of pyelitis or pregnancy, and among them there was not a single failure. On the other hand, infections by other coliform bacilli and by cocci were found in a smaller number of cases to be more resistant. An interesting feature of this work is the comparison of clinical effect with the *in vitro* behaviour of bacteria causing the infections in urine containing the drug. Although sterilization was invariably secured *in vivo*, it did not always result *in vitro*, which is very much the reverse of usual experience with anti-

[1] *J. Lab. clin. Med.*, 1937, **22**, 912.
[2] *Physical Aspects of Radium and Radon Therapy*. By Authority: L. F. Johnston, Commonwealth Government Printer, Canberra.

[1] *Lancet*, 1937, **2**, 119.

septic action. As the authors point out, the drug presumably acts in the tissues as well as in the urine itself, and the *in vitro* test is therefore not a complete replica of its action in the body. Nevertheless, there appears to be another possible explanation of this discrepancy. The authors state that the action of sulphanilamide in urine is effective " over a fairly wide range of *p*H values, 5.2 to 6.8," although evidence or authority for this statement is not given, and they adjusted urine for *in vitro* tests to *p*H 6, which is the average for normal urine. On the other hand, Helmholz and Osterberg[2] state categorically that sulphanilamide is much more bactericidal in alkaline urine. Full details are not given and their work on the subject is evidently still in progress, but they secured " a great increase in bactericidal power " in a urine containing sulphanilamide by altering the *p*H from 6 to 7.5 ; a urine containing much excreted sulphanilamide and of *p*H 6 was also found to have less bactericidal power than a urine of *p*H over 7 but containing considerably less of the drug. In the light of these facts it seems likely that the failure of bactericidal action in some of Kenny's *in vitro* tests was due to the urine having been made too acid for optimum bactericidal action. It would be interesting to know whether the urine during sulphanilamide treatment actually becomes more alkaline, as Helmholz and Osterberg suggest ; if not, it could easily be rendered so, and the advantage, which they point out, of being able effectively to treat proteus infections, in which the urine often remains persistently alkaline, is very great. These authors also claim to have shown that the conjugated sulphanilamide in the urine rather than the free is the active bactericidal agent. The whole of this subject calls for further detailed study, but it is already clear that here is another valuable weapon for the treatment of infections which used sometimes to be resistant to all efforts to eradicate them. According to Kenny its advantages are not only the rapidity and certainty of its effect but ease of toleration and comparative cheapness.

PROFESSOR ADOLF MEYER

Many of Professor Meyer's pupils met last April at the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital, Baltimore, to honour him on his seventieth birthday. This coincided with the beginning of his twenty-fifth year as director of the clinic. The first session was celebrated by the presentation of papers by eight of his many one-time students who are now working in most of the English-speaking countries and also in France, Switzerland, Norway, China, and Japan. Several of these papers were printed in a special number of the *Archives of Neurology and Psychiatry* (April, 1937) dedicated to Professor Meyer. The breadth of Meyer's interest in the personal, the social, the physical, and the constitutional facts presented by his patients—or, to use his words, his interest in " the psychobiologically integrated individual "—is adequately reflected in the varied topics discussed. These range from a neurolopathological discussion of syphilitic arachnoiditis of the optic chiasm ; a neurosurgical report of the removal of a colloid cyst from the third ventricle ; physiological studies of the cerebral circulation and conditioned reflexes ; psychopathological reports on amnesia, metaphor, aversion, negativism, and the pathogenesis of hallucinations and delusions ; clinical psychiatric studies of children presenting decreasing intelligence quotients ; to articles dealing with special aspects of psychotherapy and prognosis. Meyer's career has shown the gradual unfolding of his unique abilities in formulation, teaching, and stimulation which have had a profound effect on the development of modern psychiatry. Meyer left Switzerland for the United States forty-five years ago, and worked in Illinois, at the Worcester State Hospital, Massachusetts, in New York—developing as part of the State Service what has become the New York Psychiatric Institute—and since 1910 he has been associated with Johns Hopkins Hospital. It is hoped that his collected writings will soon be published, so that they may reach a wider medical public.

[2] *Proc. Mayo Clin.*, 1937, **12**, 377.

MEDICINE IN THE MODERN WORLD

The medical profession has many public critics, and some of its most widely read detractors are in fact of its own household. No better antidote to calumny can be imagined than the recent collection of addresses by Lord Horder.[1] He covers a very wide range: he shows the firmness of his historical foundation in " The Hunterian Tradition " ; his sense of the current needs of the time in " National Physique," " Old Diseases and New," and " Towards National Health " ; and manifests his comprehension of the part which his profession ought to play in the modern world in his studies of the doctor as a humanist, as a contributor to the public happiness, and as a member of society. There is here no panegyric of the excellence of medicine and the medical man. This is a book by a physician at the head of his profession, and the man or woman who reads these essays, which persuade of their essential truthfulness by their quiet sanity, must feel that if they represent the mind of a leader and his opinions about medical men the profession must indeed be sound at heart. Lord Horder's work shows also his gifts as a writer and thinker. He has a way of expressing truths in clear images which strike home to the ordinary feelings of plain people. Lord Horder indeed may say, "*Nihil humanum a me alienum puto.*" He has spoken and written about medical subjects, but there is nothing here that the layman cannot understand, that is not a part of real human life. He sets his brother doctors an example which, if all followed, would greatly enlarge and strengthen its corporate spirit: that of general culture side by side with professional erudition.

On the occasion of the annual Buckston Browne Dinner on November 11, it is proposed to hold an exhibition of works of art by Fellows and Members of the Royal College of Surgeons of England, which will remain open for about three weeks and will be held in one of the Museum Rooms at the College. Any Fellow or Member wishing to exhibit some of his work, either pictorial or sculptural, is asked to communicate with Dr. John Beattie, Royal College of Surgeons, Lincoln's Inn Fields, W.C.2, as soon as possible.

[1] *Health and a Day.* By Lord Horder of Ashford. J. M. Dent and Sons, Ltd. (7s. 6d.)

ANAESTHESIA IN GENERAL PRACTICE

This is one of a series of articles, contributed by invitation

GENERAL ANAESTHESIA IN DENTISTRY

BY

W. S. McCONNELL, M.B., B.S.

The dental surgeon who calls in the services of an anaesthetist requires an anaesthetic which, though brief, must be tranquil, and must ensure that the patient feels nothing of the extraction and is able to walk home afterwards. He needs also the co-operation of the anaesthetist in supporting the head, using a gag, and maintaining an efficient throat pack. I propose to deal with the administration of anaesthetics to children and adults, both in the surgery and in the nursing home or private house, discussing the various factors which modify the choice of the method used and the manner in which the anaesthetist may assist the dental surgeon. The views expressed in this article are my own, and I have confined myself to a description of those methods which I constantly employ.

In recent years there has been a tendency to employ complicated nitrous-oxide-and-oxygen machines when simpler equipment would serve equally well. Unless the anaesthetist can give a satisfactory nitrous-oxide-and-air anaesthetic, using only a nose-piece, tubes, bag, and cylinders, it is unlikely that he will obtain the best results from a complicated machine, and, what is more, he may blame the apparatus for his failure. In private practice I use the simplest type of apparatus: cylinders of nitrous oxide and oxygen controlled by foot-keys, a rubber double bag, a small mixing chamber connected to the nose-piece, and a mouth inhaler.

Anaesthesia for Children

For the small child of 3 or 4 years of age ethyl chloride given on an open mask is satisfactory, because with nitrous oxide only a narrow margin divides too light an anaesthesia with associated cries and voluntary movements from partial asphyxia with cyanosis and jactitation. If the child is nervous it may be impossible to use nasal nitrous oxide, for the nose-piece will not be tolerated sufficiently close to the face, or the child may breathe exclusively through the mouth. A full face mask will overcome the difficulty, but will certainly scare the child and will produce but a brief period of anaesthesia. In such a case ethyl chloride may be given on the corner of the upturned bib, and should the child move the head there is no difficulty in following such movements with the napkin. It is important not to allow the intensely cold towel or bib to press on the child's face; two tubes of ethyl chloride should be available, as one may be knocked from the hand and broken.

Whatever method is chosen much tact and gentle handling will be necessary. My rule is to try persuasion for ten minutes: if this fails the parent is asked to decide whether force shall be used or less drastic measures, such as the production of sleep by drugs in bed at home. When told beforehand that he is to have a tooth extracted, and that he will be given something to breathe to take any pain away, even a nervous child will follow simple instructions. Much depends on the impression given to the child by the first anaesthetic in the dental surgery; there should be no question of creeping up and taking him by surprise. Every step of the procedure should be explained before the administration in fairness to the child and to the dental surgeon, for if any deception is practised he may lose the confidence of his small patient. In hospital practice it is not uncommon to remove eight temporary teeth in a small child at one sitting. Much depends on the skill of the anaesthetist as to whether the patient can be kept sufficiently quiet and still for such an extraction, using nitrous oxide and air or oxygen. If there is any doubt ethyl chloride should be employed.

Necessary Preliminaries

The child should be made comfortable in the chair, with the occiput well supported by the head-rest, helped by cushions if necessary in the case of very small children. If the legs are dangling uncomfortably over the edge of the chair and the child appears likely to slide off he should be made to sit tailor-wise with the legs crossed on the seat. The position of the teeth to be extracted should be noted, and also whether a Mason's gag will be required to change to the other side of the mouth. An attempt should be made to insert a dental prop before the induction of anaesthesia. Explain to the child that all good children go to sleep with their mouths closed, but that on this one occasion it is necessary to have it open; should persuasion fail the anaesthetic is started, but it is important not to allow the child to become completely anaesthetized before a Mason's gag is inserted.

In children deeply anaesthetized with the mouth closed the tongue may cause some respiratory obstruction, and spasm of the muscles of the jaw will result. Attempts to force the mouth open are more than likely to damage or displace a deciduous tooth, but by resting a gag in the mouth in the early stages of the induction it is possible to open the mouth gently as the anaesthetic proceeds. If the anaesthetic has been carried too far for the child to open its mouth voluntarily the dental surgeon should place a hand firmly on the child's forehead while the anaesthetist depresses the chin with one hand, inserting the gag into the already opened mouth and not using it to force the jaw open.

Respiration

The one safe guide to the progress of anaesthesia with ethyl chloride is the respiration. It is important to hear or see every breath from the moment of induction, and if from any cause the respiratory movements cease the drug should be withheld. In the early stages of induction the child may hold its breath; at such times the spray of ethyl chloride is stopped, the mask, however, remaining in position. When respiration begins once more further quantities of ethyl chloride are given until the breathing becomes automatic. If ethyl chloride is administered only in the presence of regular respiration possible causes of anxiety may be avoided. It should be apparent if respiration ceases that the cause is breath-holding during the induction, obstruction due to the tongue, spasm of the glottis at a later stage, or, finally, gross overdosage.

Spontaneous movements of the child's limbs are disregarded, and no reliance is placed on the presence or absence of stertor, the size of the pupils, or the direction of the squint. How much deeper the anaesthesia is carried after automatic breathing is established depends upon the amount of work to be done, but in no case should it be pushed until there is a snatch in the respiration, or until the breathing becomes shallow. No obstruction of the airway can be tolerated during ethyl-chloride anaesthesia, and in most cases the jaw must be held forward by a very definite effort on the part of the anaesthetist, particularly when lower molar teeth are being extracted and the fingers of the dental surgeon tend to depress the tongue.

During induction with a gentle stream of nitrous oxide blown from a distance of an inch or so from the nose the attention of the child may be distracted by a suitable story. This should be continued during the moments of awakening, and few children detect any loss of continuity. Most children can be persuaded to breathe through the nose: if not, then a mouth-piece through which nitrous oxide is blown should be employed in preference to covering the mouth with a hand, for it is not difficult to asphyxiate a child by such obstruction to the respiration.

A moistened marine sponge to which a length of tape has been securely fastened is always inserted as a throat pack before any extraction, as deciduous teeth readily slip out of the forceps. It is placed so as not to carry the tongue back but to form a diaphragm at the entrance to the fauces. If pushed too far back it may cause the patient to retch and displace the dental prop. If with nitrous oxide and air the procedure threatens to be prolonged added oxygen makes for a smoother and more tranquil anaesthesia, but with the disadvantage of possible nausea afterwards. No attempt is made to work with a definite percentage of nitrous oxide and oxygen, the mixture being varied to meet the requirements of the patient.

Anaesthesia for Adults

The patient should sit upright in the chair, with the head-rest supporting the neck and occiput. Saliva collecting in the mouth during the induction is then less likely to trickle to the back of the throat and cause coughing or retching, and the tongue, even if depressed by the fingers of the dental surgeon, is less likely to obstruct respiration. The legs should rest naturally and not be wedged against the foot-rest. The anaesthetist should be shown the teeth to be extracted, and should note the presence or absence of such fragile appliances as gold bridges or porcelain crowns, so that he may avoid resting a Mason's gag on them. A mouth prop is inserted by the dental surgeon. Induction is slow, and the metal nose-piece is held at a distance while nitrous oxide is allowed to stream towards the nose. The valve on the nose-piece should not be closed during the induction, as the expiratory difficulty so produced may cause the patient to breathe through the mouth. In cases of partial nasal obstruction or persistent mouth breathing a mouth-piece becomes essential, but the insertion of the throat pack may restore nasal breathing. The guide to anaesthesia is the change to automatic respiration. The dental surgeon is invited to begin the extractions, not by the spoken word, but by a sign or gesture. Many patients describe how they have heard an anaesthetist say "Right you are" or "She's ready now."

Assisting the dental surgeon during the extractions consists very largely in keeping out of his way. When a right lower molar tooth is being removed the left arm of the dentist, who will be standing behind the patient, should be allowed to encircle the patient's head; during the extraction of upper central and lateral teeth the nose-piece should be temporarily raised, and while upper molars are being removed the head should be held as still as possible and a finger employed to retract the lower lip and protect it from the pressure of the forceps. A Mason's gag should be inserted by sight, the blades resting on molar teeth and two fingers of the opposite hand clearing the lips as the closed gag is placed between them. The instrument is locked in the open position and held against the cheek by the pressure of an open hand, so that it will follow all the movements of the patient's head. If gripped rigidly by the handles it will rock on the teeth if the head is moved, with possible damage to fillings and inlays. At the end of the extractions the prop and mouth-pack are allowed to remain in position until recovery of consciousness is complete.

Difficult Cases

Two classes of male adults present some difficulty—namely, the alcoholic who fights and struggles when partially anaesthetized with nitrous oxide and the man who struggles before anaesthesia is complete and tears the nose-piece off while he is still conscious. If the extractions are few in number and unlikely to present any difficulty it may be possible to maintain anaesthesia in the first group with nitrous oxide and added air or oxygen. A mouth-piece may be essential, as such patients when struggling breathe very deeply and may change over to mouth breathing without warning. For the second type the only hope is a quick induction, but at the best this will be uncomfortable.

For such cases I have found satisfactory a small dose of evipan given in the upright position in the dental chair and followed by nasal gas. This method should not be used unless the patient has a friend who can take him home after resting under supervision in the surgery for a period of up to one hour afterwards. Evipan is not employed as a substitute for nitrous oxide or just because the patient "hates gas." It is suitable for the difficult patient with easy teeth, or the easy patient with difficult teeth, but not for the difficult patient with difficult teeth, as the dosage must of necessity be small.

Inquiry is made into the patient's past medical history, the pulse is counted for one minute to exclude irregularities, and the arms are inspected to find a suitable vein. A strap is placed round the pelvis of the patient and well down under the back of the dental chair, since there may be a tendency to slide down. A cushion on the arm-rest enables the forearm to remain comfortably in extension. A rubber tourniquet is applied, the skin cleaned with spirit, and the injection begun. The dental surgeon supports the head and jaw to ensure an airway and inserts a prop before consciousness is lost, maintaining it in position until anaesthesia is complete, since there is a likelihood of its falling out should the patient yawn. At the conclusion of the injection a pad should be placed over the site and the forearm flexed to avoid possible leakage of blood. If no dental prop is used to keep the mouth open during the induction much larger doses of evipan may be required, as some difficulty may be experienced in opening the patient's mouth.

The first sign of the onset of sleep may be seen when 2 c.cm. have been given; half a minute should be allowed to elapse before further quantities of the drug are injected. The object is to give the minimum amount of evipan to

produce a short period of anaesthesia. If too little is given the patient, when stimulated, may become quite uncontrollable; if more than sufficient is given the return to consciousness may be much delayed, and it may be some hours before the patient is fit to leave the surgery. With those addicted to alcohol, or in a highly nervous or apprehensive state, doses up to 5 or 6 c.cm. may be necessary.

The maintenance of an airway in a patient under evipan in the dental chair is particularly important. Obstruction such as is sometimes seen under nitrous oxide, when of necessity the dentist's fingers depress the tongue, cannot be tolerated. The amount of evipan given should never be enough to depress the respiration in any marked degree. Stimulation of the return of consciousness can be obtained by the inhalation of smelling salts or of carbon dioxide-oxygen mixtures.

Dental Operations in Nursing Homes

The induction of anaesthesia for dental operations in a nursing home, whether the patient is a child or adult, is similar to that for any major operation, and basal narcotics such as nembutal, avertin, and paraldehyde (which are described in another article in this series) may be used. To maintain anaesthesia ether vapour and oxygen or nitrous oxide and oxygen may be blown through a tube inserted through the nostril, leaving the mouth free for the dental surgeon. For the operation of removal of difficult wisdom teeth, in which the jaw is constantly depressed by the dentist, it is an advantage to employ an endotracheal tube, but for multiple extractions a short tube passed through one nostril into the oral pharynx will serve. A useful length for such a tube is the distance measured from the tip of the nose to the lobe of the patient's ear; the tube will not reach the vocal cords, and when employed it is necessary for the anaesthetist to support the mandible throughout the operation. If the patient's head is to be covered with towels care should be taken to see that the eyes are closed, as they may be injured by contact with such coverings in the movements of the head involved in a difficult extraction.

The progress of anaesthesia throughout the operation is estimated entirely by the respiration. The patient is maintained at a level of anaesthesia at which he does not cough when, from the manipulations of the dental surgeon's fingers on the throat pack, the posterior pharyngeal wall is irritated. At the conclusion of the operation the anaesthetic is discontinued and the throat pack removed. If the patient does not cough within a minute or so carbon dioxide and oxygen are blown through the nasal tube. On the return of the cough reflex the nasal or endotracheal tube is removed, but the mouth-prop is allowed to remain. If the prop is taken away too soon some patients tend to clench the teeth and allow the tongue to cause obstruction or grind the teeth, with the possible dislodgement of an inlay or filling. Once in bed the patient is turned well over to one or other side to ensure that any oozing from the sockets dribbles out of the mouth.

The following officers of the Women's Medical Service for India have received the Coronation Medal: Drs. H. M. Franklin, M. C. Murphy, E. Hamilton-Browne, H. M. Lazarus, Grace Stapleton, L. de Menezes, Ruth Young, G. Patel, N. Mucadam, Torrance-Allen, L. Ghosh, Roulston Mitton, K. McDermott, H. Keane, A. Dodhi, H. Acheson, D. Bolton, E. Wingate, U. Morton, I. Keess, N. Proctor-Sims, J. Orkney, C. L. Houlton.

"THE SURGEON'S LOG"

AN ANALYSIS OF THE HEALTH OF THE CREWS OF A LARGE FLEET OF MERCHANT SHIPS

BY

W. ARTHUR TATCHELL, M.R.C.S., L.R.C.P.

Medical Superintendent, Blue Funnel Line and Glen Line

There is no standardized "surgeon's log," each shipping company having its own form; nevertheless, though details may vary, the principal items recorded are the same. Our log is rather comprehensive, giving the name of the port where the ship is lying or to which it is bound, the numbers of the crew and passengers, the daily temperature, and a list of the sick, their treatment and progress. At the end of each voyage the log, with abstracts of cases and a list of accidents, however trivial, is either brought by the surgeon or forwarded to the medical superintendent at the head office of the company. There it is carefully examined by the medical superintendent and a summary of cases recorded. The log, when labelled and numbered, is placed in order with hundreds of others for future reference when necessary.

A Year's Statistics

These final statements, which I have made annually, are, I think, both enlightening and instructive, and it occurred to me that the publication of one year's statistics of the crews of a large merchant fleet would be of interest and possibly useful to those who are responsible for the health of seafaring men. To know what the principal diseases are from which seafaring men suffer and which cause them to be put off duty may help to guide those responsible for their health in an intelligent direction in the matter of prevention.

Health at sea, as on land, is largely ruled by conditions of living, food, and available treatment. The different standards for these set by owners will, I believe, be largely reflected in the entries in the surgeon's log. Climate must be taken into account. A North Atlantic company will probably have different results from one whose ships are trading for half their voyages within ten degrees of the equator. The fleet of the company concerned in the present analysis consists of eighty-five ships, varying in tonnage from 3,066 to 14,646 tons gross. The policy of the owners is to have a surgeon in each ship, although legally required to carry one in only fourteen of their ships.

The ships from which the statistics are taken sailed between the United Kingdom, and the Straits Settlements, China, Japan, the Dutch East Indies, and Australia. I have omitted for reasons of accuracy our Western Australia ships, which sail between Singapore and Fremantle, the transpacific service between Hong Kong and Vancouver, ships plying between New York and the Far East, and those flying the Dutch flag. The crews are composed of Europeans and Chinese; two ships were staffed entirely with Europeans. The Chinese are drawn principally from Hong Kong and Shanghai. All crews are carefully medically examined before signing on, the Chinese by the ship surgeon at the port of engagement. All are vaccinated at least once every three years, while the eyesight of each officer is tested once a year and a full medical examination made before each promotion. The food supplied is of good quality, well prepared, and not rationed.

The average time for the voyages was 119 days, and the average crew per ship was eighty-one, composed of forty-six Europeans and thirty-five Asiatics. In 1935 the total number of "men-days" at sea was 1,268,000, and the time lost through sickness and accident was only 4,786 days, giving the remarkably low percentage of 0.4. The average time lost per man was 1.26 days for Europeans and 0.69 day for Asiatics. This does not necessarily

include the days spent in hospital by the twenty-three Europeans and seventeen Asiatics who were landed abroad.

Chief Causes of Illness

The chief causes of illness were inflammatory and febrile conditions, especially influenza. There were only a few cases of malaria. The number of days on which Europeans were off duty from all febrile causes was 633, being 18.9 per cent. of the total days lost by Europeans from all causes—that is, 3,356. For Asiatics the figure was ninety-nine days, a percentage of the total of 1,430 days lost at sea of 6.9. Asiatics were less susceptible to influenza, only forty-six days being lost by them from this cause, or 3.2 per cent., whereas the corresponding figures for Europeans were 433, or 12.6 per cent. The same observation could be made with regard to "colds and coughs." It might be presumed that the Asiatics working in the hot engine room and stokehold and experiencing the great contrasts in temperature when they came on deck would suffer more than those whose work was on deck alone. But it appears that mere change of temperature, apart from other factors, is not prejudicial.

Injuries are classified under the headings of "fractures," "contusions," "wounds," and "burns and scalds," and the number of days off duty on board ship from all four injuries was 660 for Europeans, or 19.7 per cent., and 319, or 22.3 per cent., for Asiatics. Rheumatism and inflammation of joints seem to affect the Asiatics more than the Europeans. Neuralgia deserves mention with rheumatism, as *both* occur chiefly on encountering warm to hot weather. This is also the opinion of other observers.

Tropical diseases on board ship are very rare. Only six cases of malaria occurred among the 2,690 Europeans and three among the 2,065 Asiatics. There were seventeen cases of diarrhoea among Europeans and two among Asiatics; one European and one Asiatic had typhoid, and two Europeans had dysentery and enteritis (cholera). These were the only diseases of a tropical nature which were recorded, though it is possible that a few cases of coastal fever may have been classified with influenza as being clinically indistinguishable therefrom. The percentage loss of time from tropical diseases was 3.2 for Europeans and 2.5 for Asiatics.

The commonest types of skin diseases are those caused by various microsporons. Prickly heat rashes are confined almost entirely to the Tropics, and generally yield quickly to treatment with the use of fresh and the avoidance of salt water. Boils and pustular rashes are occasionally met with. Pediculosis is rare, there being adequate facilities on board the ships in the way of baths and washhouses for clothes to ensure personal cleanliness. Other types of skin troubles are so infrequent as to be represented by isolated cases. It may be noted that cuts, abrasions, ulcers, burns, and scalds, also most of the other skin affections, heal more slowly in the Tropics than in temperate climates. This may be attributable to the almost constant moist state of the skin rendering it impossible to keep lesions dry, and affording a more suitable medium for the growth of germs.

Effects of the Sun

There were eighteen cases of sun and heat strokes among Europeans and three among Asiatics. One must discriminate between the cases attributed to the direct rays of the sun and those due to heat. I think the vast majority of cases were, and are, due to heat. Real sunstroke is reputed to occur at two periods of the day—namely, the rising and setting of the sun, whether the atmosphere be clear or dull, and the "stroke" is caused through either the eyes or the back of the neck. I have not come across a case at sea, but the two authentic cases I saw in China happened during the setting of the sun on dull days at an altitude of 3,500 feet. Heat stroke can occur at any period of the day, but seldom in the early morning or evening. I may add that our officers have derived great benefit, including freedom from fatigue and headache, from wearing neutral-tinted glasses on the bridge and while working on deck during both bright and dull days. Racial susceptibility to disease is not well marked on board ship in our experience of the voyages considered. Pulmonary tuberculosis was rare, but a few cases were reported among the Chinese. Cases of beriberi, which is common in South China, were extremely rare. The latter are difficult to diagnose if the disease is in its early stages when the patient is examined, but any sufferer is soon restored to health with the good food supplies of meat, fish, eggs, and vegetables.

As to the morale of the crews, both the Asiatics and Europeans are a steady class of men. The amount of time lost through vicious propensities is negligible. Those members of the medical profession or general public who regard the seafarer as a hard-drinking morally lax person are entirely in error. At sea deck games are encouraged, and when in port football and cricket matches are frequently arranged; also other recreational facilities are provided in the company's clubs at various ports.

Conclusions

The different diseases, etc., recorded here are those causing loss of time only. There were many others mentioned in the logs, but their effect in this respect was insignificant. Considering the statistics as a whole and that the average time lost per man during the year was one day only, the conclusion must be that the seafaring life is a comparatively safe and healthy one on the routes and under the conditions considered where medical aid is constantly present. Is this a fair sample of the vast majority of trading routes and the experience of other shipping companies?

I wish to express my thanks for the valuable assistance of Dr. J. A. Tobin and my secretary, Mr. A. B. Tytler, in preparing the statistics from which this material has been compiled.

VITAL STATISTICS OF MALTA

The vital statistics of the Maltese islands (Malta and Gozo) showed a remarkable improvement in several respects in 1936, though the Chief Government Medical Officer (Dr. A. V. Bernard) in his annual report emphasizes the fact that in vital statistics based on small populations considerable fluctuations may occur in short periods due to ephemeral and fortuitous causes. The islands have a population of 262,165, which is about ten times as great as it was 1,000 years ago. The birth rate is steady at 33.8 per 1,000, and has not differed markedly during the last ten years; it stands where the birth rate for England and Wales stood fifty years ago, and where the birth rate for British India stands at present. The death rate for 1936 (17.61) shows a considerable drop, and compares with an average of 22.3 for the last nine years. The infant mortality, though still at the very high figure of 190 per 1,000 births, also registers a big fall from the average of the previous nine years of 280. The mortality of children under 5 has declined to 66 per 1,000 from rates which during the last ten years have approximated to 100. The high infant mortality accompanies a very high birth rate, and the population of Malta is steadily increasing at a more rapid rate than in countries where a low infant mortality is coupled with a diminishing birth rate. Of the notifiable diseases the commonest is undulant fever, of which there were 873 cases in 1936 (the lowest figure since 1927) and fifty-two deaths. The decrease in the incidence of this disease must be ascribed either to a diminution in the diffusibility and virulence of the infecting agent or to an increased resistance to the disease among a larger proportion of the population due to immunity derived from high prevalence. An undulant fever research station has been at work since the beginning of last year, and progress is also being made in the scheme for setting up a milk pasteurization plant.

Nova et Vetera

JOHN SNOW (1813-58)

A PAINSTAKING STATISTICIAN

Although Charles Creighton was a great historian his judgements of the significance of scientific achievements have seldom been confirmed by posterity. His heroes, Pariset and Robert Watt, live only in his pages; the fame of even Pettenkofer, whom he admired, is dim. Edward Jenner, on the other hand, to whom he attributed so many evil and so few good qualities, and Robert Koch, at whom he jeered, are not likely to be forgotten. Two epidemiologists Creighton despised were William Budd and John Snow. To Budd he devoted only a depreciatory footnote, but Budd's "fallacies or paradoxes" have been reprinted and his life written. John Snow had even shorter shrift. After describing the epidemiological drama of Golden Square, Creighton wrote:

"The whole incident was seized upon and worked up by Dr. Snow, who had written a speculative essay in 1849 upon the probability of cholera being conveyed by water, according to the similar theory of Parkin in 1832. The Board of Health, having very full data before them of the Soho outbreak in all its aspects (including a whole biological treatise upon the organisms found in water), did not adopt Snow's conclusion, although he had enthusiastic followers at the time, and has probably more now." (*Hist. of Epidem. in Britain*, **2**, 854.)

At least Creighton's concluding words are true. The Commonwealth Fund has just reprinted Snow's chief epidemiological papers with Richardson's memoir of him and an enthusiastic introduction by Professor Wade Frost of the Johns Hopkins School of Hygiene.[1]

Snow on Cholera

Whether, having before him the fully documented second edition of Snow's pamphlet (published in 1855), Creighton's sneer at the essay of 1849 were worthy of a historian of his rank may be doubted. But we must not run into the opposite error of sneering at Creighton merely because Snow's "speculations" regarding cholera have proved in the long run much more illuminating than Creighton's own conclusions. It is true that some of Snow's opinions *were* only speculations. He thought that epidemiologically plague, malaria, and yellow fever were *in pari materia* with cholera, and his address "On Continuous Molecular Changes" (also reprinted) might well have seemed to so erudite a man as Creighton superficial. Snow's biopathology was not much in advance of Fracastor's, and not at all in advance of Henle's essay published thirteen years before Snow's. Snow's depreciation of ancient epidemiology does not attest any serious knowledge of the subject. These are, we think, palliations of Creighton's conduct; but only palliations, for his account of Snow's work *is* misleading, and it is well that justice has been done to the memory of an epidemiologist whose strong points and weak points were characteristically English.

Born in 1813 and bred a general practitioner, Snow settled in London, and his contact with medical science was mainly through the Westminster Medical Society (later to become the Medical Society). After 1846 he specialized in anaesthesia, and devoted much of his leisure to the physiology of that subject; he was at work on a treatise on chloroform and other anaesthetics in the year of his death, 1858.

Snow's epidemiology was a labour of love. Professor Frost speaks of him as "endowed with the ability to think in straight lines, and the courage to follow his thought." That is, we think, a well-deserved eulogy. If the devil's advocate retorted that Snow was a man of one idea who did not give much attention to other ideas, that would also be true. But, and this is Snow's supreme merit, he was almost Darwinian in the trouble he took to assemble not some but all of the relevant statistical facts. His hypothesis was that cholera had its biological origin in a vital something which passed into the dejecta of patients. He did *not* suppose that all cases arose from the drinking of contaminated water, but he did suppose that water was the chief vehicle of infection. Therefore he set himself to study the local distribution of cholera in a city having various sources of water supply.

"I felt that the circumstances of the cholera-poison passing down the sewers into a great river, and being distributed through miles of pipes, and yet producing its specific effects, was a fact of so startling a nature, and of so vast importance to the community, that it could not be too rigidly examined or established on too firm a basis."

The Southwark and Vauxhall Water Supplies

Snow's statistical and field investigation was thorough. The case of the Broad Street Pump has such an element of melodrama, and has so recently been summarized by Dr. Harold Scott in his excellent book *Some Notable Epidemics*, that most people think only of it. But, as a piece of field and statistical investigation, we should give even higher praise to the tracing out of households taking the water of the Southwark and Vauxhall Company in 1854 and the statistical presentation of results. Of course Snow did not prove that the customers of the Southwark and Vauxhall Company were actually poisoned by the company's water, but he did show that in the first seven weeks of the epidemic they died of cholera at from eight to nine times the rate sustained by the customers of the Lambeth Company. Further, he made a special investigation of that part of the area in which both companies operated.

"The inquiry was necessarily attended with a good deal of trouble. There were very few instances in which I could at once get the information I required. Even when the water rates are paid by the residents they can seldom remember the name of the water company till they have looked for the receipt."

In the end he concluded that in 286 of the fatal cases the house where the victim fell sick was supplied by the Southwark and Vauxhall Company and in only fourteen by the Lambeth Company. In the other cases the sources were varied. As, according to a parliamentary return the Southwark and Vauxhall Company supplied 40,046 houses, the Lambeth Company 26,107, the disproportion in incidence was enormous. It is true that Snow was not able to ascertain the total distribution by houses in the particular part of the area served by both companies, the figures just quoted are for all areas, so that he did not prove statistically that in houses in the same street the customers of the Southwark and Vauxhall Company were taken and those of the Lambeth Company spared; had he done so the case would have been logically complete, for the factor of elevation—stressed by Farr—would have been neutralized; but that would have been an impossible task for a private investigator. Farr, unlike Creighton, did not sneer at Snow's work; on the contrary, he made special reference to it (in the Seventeenth Annual Report of the Registrar-General), and in his own statistical researches, particularly in his terrible indictment of the East London Company (contained in the report on the epidemic of 1866), twelve years later, virtually adopted and extended Snow's method of statistical investigation. Although without scientific precision, the following remark has some historical interest.

"Many of the people receiving this latter supply [that of the Southwark and Vauxhall Company] were in the habit of tying a piece of linen or some other fabric over the tap

[1] *Snow on Cholera. Being a Reprint of Two Papers by John Snow, M.D., together with a Bibliographical Memoir*, by B. W. Richardson, M.D., and an introduction by Wade Hampton Frost, M.D. London: H. Milford, Oxford University Press. (10s. 6d.)

by which the water entered the butt or cistern, and in two hours, as the water came in, about a tablespoon of dirt was collected, all in motion with a variety of water insects, while the strained water was far from being clear."

Such was the water supply of part of the metropolis as recently as 1854.

Snow's range was narrower than Budd's, who had the advantages of a wider education and a longer life, but there is much similarity between the work of the two. Snow was a better statistician than Budd and before him in setting the investigation of cholera upon a fruitful line of study; Budd had better opportunities—perhaps a greater flair for field investigations in country districts. Both influenced for good official research and public health administration. It is fitting that the principal writings of both should have been reprinted in the same series.

M. G.

RECREATION AND PHYSICAL FITNESS

BOARD OF EDUCATION HANDBOOKS

H.M. Stationery Office publishes this week two handbooks of recreation and physical fitness; one dealing with youths and men and the other with girls and women. They are profusely illustrated and may be obtained from the Stationery Office or through any publisher, price 2s. 6d. Sir Arthur MacNalty contributes a foreword to each volume.

The New Policy of Physical Education

The handbooks, which have been prepared by the Board of Education, were foreshadowed in the Board's Circular 1445, which was issued early in 1936 and outlined a new policy on physical education for which the lead was given by the British Medical Association when it appointed its special committee in January, 1933. That policy emphasized the importance of better facilities in the schools in the form of gymnasiums, changing rooms, shower baths, playgrounds and playing fields; of more time for physical training and games in the curriculum; of a full supply of teachers trained in modern educational gymnastics; and of the appointment by all local education authorities of organizers of physical education.

The circular has been supplemented and followed up by the Government's scheme for encouraging recreation and physical fitness among those who have left school. The scheme was explained last February in a White Paper (Cmd. 5364) and has now been implemented by the new Physical Training and Recreation Act. A National Advisory Council has been called into being, together with a central Grants Committee. Local area committees are in process of formation over the whole country. A National Physical Training College for leaders is to be established.

Physical Training Organizers

The organizers employed by local education authorities, who are regarded by the Board of Education as the keystone of physical education in the areas where they have been appointed, have already done much not only to improve the standard of physical education in the schools but also to stimulate the enthusiasm of those who have left school. They have induced their authorities to help and they have often been able to advise the various voluntary bodies engaged in recreational work. "Keep-fit" classes are spreading all over the country; the area of playing fields open to the public is growing; open-air swimming baths are immensely popular; and camping and hiking are becoming national pastimes. There is thus to-day both a spontaneous and an official movement towards physical fitness and recreational activities for all.

The two handbooks therefore come at an opportune moment, for their main purpose is to give advice and guidance to all those who are responsible for conducting the activities of youth organizations, clubs, classes, and centres, and for selecting and training leaders.

Guidance for Youths and Men

In the book for youths and men a chapter deals fully with gymnastics in its broadest sense and includes three groupings of exercises: free-standing and floor exercises with a "bite" in them; stronger exercises, some of them with apparatus; and jumping, vaulting, and agility exercises. In combination these groups form a well-balanced treatment. Such a combination is commonly known as a gymnastic table, and a number of tables are given for the use of leaders. Exercises which should be performed with a rhythmic swing have not been overlooked, and there is also a comprehensive list of the various gymnastic exercises. Physical exercises and gymnastics are included in the handbook because these forms of activity give alertness, agility, control, balance, poise, and rhythm.

The teaching and organization of team ball games, national team games, general athletics, swimming, dancing, boxing, skipping, and wrestling are also fully dealt with, and a chapter on camping reflects the popularity of camping holidays. In the appendices there is advice for the organization of athletic sports, swimming sports, and boxing meetings.

Girls and Women

The book for girls and women is arranged under three main headings: general introduction; schemes of indoor training; schemes of outdoor training. A wide range of activities has been included, all of them within the scope of the working girl or woman who wants exercise but has limited opportunities for enjoying it. Differing ages, interests, and physical abilities are all taken into account. There is "keep-fit" work for those who like to take their "daily dozen" in company, and gymnastics for the more energetically inclined. To women and girls who prefer a more aesthetic and musical approach the section on dancing will appeal. A comprehensive survey is made of all the main open-air activities. Hockey, net-ball, cricket, tennis, rounders, stool ball, and lesser team games are dealt with in more or less detail, while swimming, athletics, and camping have chapters to themselves. In this book, as in the companion book for youths and men, the beginner player and the amateur leader as well as the professional coach have been kept in mind.

The International Spa Congress will take place in Budapest, under the presidency of the Archduke Joseph Francis, from October 7 to 14, in association with the inaugural meeting of the Royal Hungarian Academy of Science. A wreath will be placed at the foot of the statue of Semmelweiss, and visits will be paid to the more important thermal establishments in the vicinity. Five sub-committees have been constituted to organize the various scientific lectures and discussions, which will relate to the medical, technical, economic, legal, and propaganda aspects of spa treatment. Special arrangements are being made to exhibit to delegates and visitors the cultural, ethnographical, and tourist characteristics of Hungary. Included in the large and diverse programme of topics for consideration are the importance of thermal baths as regards public hygiene, medical and staffing questions relating to thermal establishments and spas, dietetics, and statistical work at spas. Lectures will be delivered in English, French, German, Italian, and Hungarian. A medical postgraduate course will be held concurrently, and the centenary of the Royal Medical Society of Budapest will be celebrated during the week of the Congress. Further details may be obtained from the Congress Office, Dorottya Utca 11, Budapest V, Hungary.

Local News

ENGLAND AND WALES

Epsom College Pensions

Later on in the year the Council of Epsom College will award two "France" pensions of £30 per annum each to duly qualified medical men in reduced circumstances. Candidates must be not less than 55 years of age, and, if single, must not be in receipt of an income, independently of any allowance from the College or the Royal Medical Benevolent Fund, of more than £100 per annum. If married, the combined incomes of the candidate and his wife must not exceed £150 per annum. Forms of application may be obtained from the Secretary, Epsom College Office, 49, Bedford Square, London, W.C.1.

Child Welfare in Wales

Speaking at the opening of a new maternity and child welfare centre at Glyn Neath during his official visit to South Wales last week, Sir Kingsley Wood said a child population, healthy and sound, was more than ever important to-day, not only for the sake of the children but because the fall in the birth rate had reduced the proportion of young lives in our population while the fall in the general death rate had increased the proportion of the older people. Infant mortality in England and Wales remained at a low level, and during the last ten years the rate of mortality had been less than half what it was at the beginning of the century. This had been largely due to the efforts of the State and the local authorities and voluntary agencies by the improvement in the environment of the child. Social, domestic, and sanitary and better housing conditions had played a great part. While the arrangements for supervising the health of children under the age of 18 months or 2 years were generally satisfactory, he desired to see a more systematic and periodical health visiting of all children under 5 who did not attend school. The further establishment in certain areas of special "toddlers clinics" and of day nurseries was also well worth while. Local authorities had in the main spared no trouble in making provision for destitute children in suitable homes, but perhaps the most important thing to-day was to find the right people to look after the children. Buildings were important but far less so than the staff. Children should not be retained in institutions but in homes under the guidance of people who studied their needs and made them useful citizens. In Wales there had been a continued and considerable expansion of services. In 1926 there were thirteen ante-natal clinics at which about 10 per cent. of expectant mothers attended; to-day there were 104 such clinics, and about 40 per cent. of the mothers attended them. In 1926 there were 250 infant welfare centres and there were over 300 to-day, and nearly 70 per cent. of the children under 5 attended them. He was glad to see that the Commissioner had been able to give, or had undertaken to give, grants towards the erection of twenty-four maternity and child welfare centres.

In an address later in the week to the representatives of the Welsh local authorities at Cardiff, the Minister said he hoped early in the new Session to introduce in the House of Commons two important measures, one to reduce the age limit for the award of pensions to the blind and the other to provide medical care for young persons who had left school.

There was still a considerable housing programme to be undertaken, at least 300,000 new houses being required to complete the slum clearance and overcrowding programme within the present statutory standard. New financial housing provision would have to be determined by Parliament early next year. In co-operation with the industry he hoped to make proposals for securing a reduction in the price of liquid milk to local authorities for the purpose of their maternity and child welfare arrangements. Local authorities would be in a position to extend their present schemes, under which milk was made available either free or at a reduced price, as circumstances might require. The expenditure of local authorities in South Wales on milk and food had more than trebled in the last ten years, and he hoped this policy of extension would be continued. There had been two important achievements in Wales during the past year: both the infant mortality rate and the tuberculosis death rate were the lowest so far recorded in Wales. But while this was gratifying, there were many conditions in the country that called for further treatment and attention.

Light for the Blind

In 1903 Miss Winifred Holt (now Mrs. Mather) and her sister became interested in the welfare of the blind, and founded an association, which three years later became the New York Association for the Blind, to prevent unnecessary blindness and to enable the blind to help themselves. The association flourished exceedingly, and on August 13 Mr. and Mrs. Rufus Mather told an interesting story of the work done by what has now become an international organization. The meeting was held by the kind permission of the Master and Wardens in the Clothworkers Hall, Mincing Lane. An account was first given in simple untechnical language of the association's projects, and two films were shown to demonstrate how an illiterate public could be taught to avoid preventable blindness. Short legends were appended to explain each scene, and these legends could be translated into the language of the country where they were being shown. Preventable blindness, it was explained, might be grouped under the headings of bad living conditions, dirt, insufficient nourishment, industrial accidents, improper lighting, trachoma, and ophthalmia neonatorum. Much had already been done in the United States, South America, and the West Indies. Mr. and Mrs. Mather had personally visited Norway, Denmark, Poland, Hungary, Egypt, Turkey, India, China, and Japan. In each country they had received help and encouragement from the heads of the administrative departments, and as the journeys had been made at their own cost the association had not been put to any expense.

SOUTH AFRICA

Pneumonia in Rand Miners

The report for 1936 of the health department of the Central Mining Rand Mines Group includes a survey of the incidence of pneumonia among the miners and the steps taken to combat this disease. In 1936 lobar and bronchopneumonia accounted for 4.46 per cent. of the total morbidity, and for 36.91 per cent. of the total mortality. Since the figures as far back as 1915 were 6.8 per cent. and 36.41 per cent. respectively, it appears that progress in dealing with this question has not been too satisfactory. During the first decade of the century the mortality from pneumonia alone was nearly twice the present mortality from all diseases, and to this factor may be partly attributed the prohibition of the recruitment of natives from north of latitude 22 degrees south. The practice of inoculation at first produced favourable results, but in recent years its protective value appears to have become negligible. It was suggested that this might be due to a change, clinical or bacteriological, in the type of pneumonia encountered. Careful investigation, however, disproved this theory. The report quotes a statement from the *American Journal of Public Health* (December, 1936) that "at the present time the chief reliance in the field of

prevention must be placed on isolation of the patients." Large-scale therapeutic trials were carried out with massive doses of vitamin A in the form of liver, liver extracts, or concentrated oil preparations. Although favourable results were at first obtained, a further and more extensive trial led to the conclusion that administration of vitamin A had no advantage over symptomatic treatment. Nor did the employment of sodium nucleinate, quinine, pneumococcal vaccine, serum, "omnadin," or "aurodetoxin" produce any significant results. The report summarizes the question by stating that intelligent symptomatic treatment and good nursing still constitute the best means of combating pneumonia as it affects natives employed in mines.

Correspondence

Expulsion of Placenta Praevia in Advance of Foetus

SIR,—Dr. J. W. Nankivell's graphic description, in your issue of September 11 (p. 527), of one of the most unusual happenings in midwifery practice must have interested all ardent obstetricians. The likelihood of such an occurrence is greatly lessened in these days by the improved modern methods of management of cases of unavoidable haemorrhage—even Caesarean section in certain instances of the complete placenta praevia. Things were very different in the last and preceding centuries, and the writers of those days make many references to cases in which the delivery of the afterbirth preceded that of the child.

William Smellie himself describes cases and discusses their possibilities. Dr. Nankivell would, I am sure, enjoy reading Case 158 (McClintock's edition; vol. ii). Called by a midwife to a case of flooding, Smellie "found the placenta pushing through the external os [the term in his day for the vaginal orifice]; and the delivery of this was immediately followed by that of the child, which was alive, although the placenta came first. The midwife told me that when she found the placenta presenting, she was cautious of touching it with her fingers, remembering that when she attended my lectures I had observed that the death of the child, in flooding cases, might be owing to its losing blood from the laceration of the cake." Later he says, "but in such cases the child is commonly dead."

Amongst other writers Francis Mauriceau (in 1683) and Pierre Dionis (1729) describe these cases, and they both refer to "an old Practice amongst Midwives, to warm Wine in a Skellet, and put the after-birth into it before they separate it from the new-born Child; fancying that the Spirits of the Warm Wine are carry'd to the Child by the Navel String, and bring it (as they express it) to Life again. But tho' this is of no service to it, the Surgeon must by no means declare against it; for if the Child, having lost too much Blood, recovers not, the good Women will not fail to charge him with the murder of it."

This rare natural occurrence has even been advocated as a desirable method of treating certain cases of placenta praevia. Sir James Simpson, in 1841 and 1844, read papers before the Obstetric Society of Edinburgh to suggest and support this line of treatment. He considered it less dangerous, and one can see his point, than the practice then prevalent of forcibly extracting the child as quickly as possible after turning it, whatever the degree of dilatation of the cervix.

In Dr. Watt Black's *Selected Obstetrical Works* of Sir James Young Simpson (Edinburgh, 1871) there is given a "general tabular view of one hundred and forty-one cases in which expulsion or extraction of the Placenta preceded the birth of the child."

All's well that ends well, but I feel certain that Dr. Nankivell, and the family doctor who acted so promptly, would like to have had available for such a case a similar Maternity Emergency Service to that which Professor Farquhar Murray started in Newcastle-on-Tyne in 1935. Dr. Smellie would have given the opiate Dr. Nankivell prescribed, but how delighted he would have been to witness the improvement in the woman's condition brought about by the house-surgeon's intravenous saline and Dr. Facey's blood-transfusion.—I am, etc.,

Sheffield, Sept. 11. MILES H. PHILLIPS.

The "Other Half" of Medicine

SIR,—In your issue of August 28 Dr. Strauss saw fit to publish in full a letter written to another medical man about a patient. After some remarks Dr. Strauss states his belief that treatment given by him will result in a spontaneous remission of this patient's symptoms within six months.

Dr. Strauss's method of advocating the treatment he practises is not unfamiliar in connexion with forms of therapy employed outside the medical profession, but inside the profession, at least in the half to which I belong, it is still regarded as objectionable. May I venture to hope, Sir, that in future you will discourage the publication within your columns, by third parties, of reports from one medical man to another, whether for purposes of disparagement or otherwise.—I am, etc.;

London, W.1, Sept. 8. D. EVAN BEDFORD.

Sulphanilamide in the Treatment of Gonococcal Infections

SIR,—The necessity for a specific remedy in cases of gonococcal infection is so great as to be an international problem. Any research with this object in view is to be encouraged, particularly as gonococcal infection has long been a Cinderella among diseases from the aspect of investigation. It was therefore with considerable surprise that we read in your columns of September 11 the deprecatory account of the clinical value of sulphanilamide in gonococcal infections. The statement by Dr. Anwyl-Davies that sulphanilamide administered orally in acute cases of gonorrhoea is ineffective cannot be allowed to pass unchallenged.

During the last fourteen months we have had considerable interest in the action of *p*-aminophenylsulphonamide (prontosil album) in the treatment of gonococcal infections, and during this period it has been used in about 100 cases. Our early experiences showed that with an oral dosage as low as grains v t.i.d. occasional cases were seen showing rapid and marked improvement. With this dosage the number of cases responding were few but encouraging. Later, various schemes with a larger dosage were instituted, including the dosage utilized by Dees and Colston.

Recently we have given prontosil album orally in doses of grains xv t.i.d. for several weeks if necessary. Cases of acute gonococcal urethritis in the male have received this amount, some with no other treatment, some with daily irrigation with saline, and some with daily irrigation with pot. permang. 1 in 8,000. We have found that

the results in conjunction with daily urethral irrigation with pot. permang. are most encouraging, and were considerably better than when saline or no urethral irrigation was used. Of twenty-nine cases of acute gonococcal urethritis subjected to this dosage excellent results have speedily followed in twenty-one. Frequently the discharge has ceased and all symptoms have been relieved within three days. None of the twenty-one cases developed any complications. In other cases excellent results have been obtained in acute epididymitis and acute prostatitis. Favourable results have also been experienced in some cases of acute salpingitis and in vulvo-vaginitis.

Surely it will be a great calamity if the experience of Dr. Anwyl-Davies and his report to the Therapeutic Trials Committee of the Medical Research Council is allowed to stultify further research with a remedy which is of greater promise than any treatment that has been available in recent years.—We are, etc.,

D. ERSKINE.
A. G. JOHNSON.
V. E. LLOYD.

Guy's Hospital, S.E.1, Sept. 13.

Athletic Injuries of the Knee-joint

SIR,—After reading Mr. W. E. Tucker's excellent and very practical paper in your issue of September 11 (p. 525) one felt it a pity that he had not included in his otherwise very comprehensive article one or two further points which are of constant value to the general practitioner and yet not as widely recognized as they should be.

1. *Adhesive Strapping.*—While one is delighted to find Mr. Tucker stressing the importance of adequate fixation for a torn ligament or other joint structure, he omits to mention firm adhesive strapping, applied in successive layers in various directions so as to give support to the torn ligament while allowing activity in other directions. This is much more acceptable to the patient than plaster-of-Paris, which excludes him from his bath and has more weight and precludes most forms of sport. I have found adhesive strapping most valuable for all but complete tears, and even severe injuries yield to it. I had occasion to treat a man who tore most of the internal lateral ligament of his knee on the first day of a ski-ing holiday. After the knee was controlled by adhesive strapping in many layers he was able to continue his ski-ing for the rest of his three-weeks' holiday, provided he avoided Telemark turns on the injured leg, and he went all over rough snow and up and down mountains. After removal of the strapping some light adhesions were cleared up by cycling.

2. *Manipulation Without Anaesthesia.*—While agreeing heartily with Mr. Tucker that manipulation by force is resorted to far too often in these cases, I feel that he has not drawn sufficient attention to the frequency with which quite small local adhesions may keep up swelling and pain in a joint and not clear up with ordinary physiotherapy, yet yield dramatically to a forced movement judiciously applied while the patient is conscious but off his guard. In this method there is no danger of tearing any other structures or stretching muscles beyond their normal length. If the time and direction are judged correctly, which are matters of experience, the relief is immediate and the patient regains complete range of the joint or, in severe cases, steadily progressive increases of range.

3. *Graded Wedging of Shoes.*—The importance of taking strain off the knee-joint after injury by balancing the foot correctly cannot be exaggerated, but my experience is that it is not wise to use 1/4 in. wedges for all patients indiscriminately. Very few adults will feel comfortable with more than 1/8 in. inside wedges to the heels, while more than 3/16 in. is rarely tolerated; among athletes few need crooking of the sole, and some even need an *outside* wedge to the sole to prevent them slipping over in the shoe and getting a corn on the little toe.

4. *Congenital Subluxation of the Patella.*—In the discussion of quadriceps insufficiency no mention is made of congenital laxity of the ligamentum patellae, moderate degrees of which are quite common and may cause a sudden giving way of the knee that may simulate injury to the semilunar cartilage, but is not a true "locking," though it is usually started by some slip or strain. In a discussion last year in the Orthopaedic Section of the Royal Society of Medicine several of the speakers expressed the view that many knees, which have been opened for supposed cartilage injury and with negative findings, were really instances of this condition.

Trusting that you will allow me some of your valuable space for drawing attention to these points, which are apt to be overlooked in practice, though simple when recognized.—I am, etc.,

M. FORRESTER-BROWN, M.S., M.D.Lond.

Bath, Sept. 13.

Aetiology of Erythema Nodosum

SIR,—The latest theories concerning the aetiology of erythema nodosum relegate this very definite clinical entity to the realm of allergy, and the allergens responsible are said to range from tuberculin to the toxin of haemolytic streptococci. The observations throughout the following case and before the appearance of the eruption would seem to be of value in this regard.

A girl aged 4 years was seen with swollen glands on the right side of the neck. While the swelling was lower than the usual tonsil gland the throat was considered to be the source of infection. Some days later the local lesions of erythema nodosum appeared on both legs in the usual position anteriorly. They continued to appear in crops on the buttocks, the forearms, and on the face, particularly on the forehead, one typical lump being just above the bridge of the nose. The lesions went through the usual stages, showing finally mild ecchymosis. The patient's temperature ranged from 99° in the morning to 103° and 104° in the afternoon. The gland was not very tender, and no sore throat was complained of. There were mild joint pains, but these were not a marked feature.

The temperature subsided after about sixteen days but the swelling remained. A seaside holiday improved the patient's general health, but the gland did not diminish, and since it was causing some torticollis by virtue of its bulk it was removed, when it was found to contain pus. The latter on examination revealed tubercle bacilli and *no other organisms*; section of the wall of the gland showed giant-cell systems of the nature of tuberculous infection. One could safely assume, therefore, that the condition was tuberculous and not a mixed infection.

Nature is usually true to type in her skin manifestations, and erythema nodosum is such a definite clinical entity that one would hesitate to ascribe its causation to such widely differing types of infection as tubercle bacilli and haemolytic streptococci.

This case is so clear cut in its manifestations and pathological findings that one ventures to argue that, short of equally positive findings, erythema nodosum should be considered as of tuberculous origin unless proved otherwise.—I am, etc.,

London, N.7, Sept. 12. W. LEES TEMPLETON, M.D.

Relief of Rheumatic Conditions

SIR,—In a recent letter published in the *Journal* of July 10 (p. 88) I urged the importance of exercises conducted by the patient, rather than massage, for the relief of rheumatic conditions. In this connexion the results obtained by Dr. F. G. Bushnell on himself, and communicated to me, are of interest. Dr. Bushnell was, unfortunately, the victim of a very severe attack of rheumatoid arthritis. The method which Dr. Bushnell adopted for effecting relief could be followed in sanatoria devoted to the treatment of rheumatism in the same way as sanatoria are set aside for the treatment of tuberculosis.

In Dr. Bushnell's case the febrile period lasted about six months, and was spent in bed in hospitals. Dr. Bushnell, who was about 69, carried out such exercises as were possible while at "rest," but no orthopaedic measures, such as splints or correction of deformities under anaesthesia, were advised, and at the end of the febrile period he was left with flexed painful knees and elbows, etc., wasted limbs, and was unable to crawl more than a few yards or to mount steps. Having tried autogenous vaccines and various vaunted pharmaceutical "remedies" without effect, he resolved to assist natural recovery: (1) by exposure of his body to sun and air and by sea bathing; (2) by active and passive exercises of all affected joints and muscles, conducted when warm enough either in the open air or under water; (3) by rest; (4) by a balanced, adequate diet. He obtained the best climatic conditions in the Canary Islands, where there is sunshine daily, an even temperature between 60 and 70° F., and practically no rain.

From being in 1934 almost a stretcher case, he is now able to walk slowly some six or eight miles over hilly mule tracks, to "trot" on the sand, and to swim in the sea several hundred yards—an immense improvement. He has found it necessary to work without ceasing for recovery, even to the fatigue point. The objectives are to retain general health, re-educate the muscles, and so overcome deformities. When the acute stage has subsided deformities can be dealt with by manipulation of the orthopaedic surgeon under conditions of anaesthesia, the patient afterwards maintaining the improved range of movement thus given by exercises. As remedial exercises are monotonous, rowing, swimming, cycling, gymnastics, and gardening help to keep the patient cheerful. Dr. Bushnell has found that voluntary contraction of spastic muscles against opposition, however evoked, tends to produce relaxation of such muscles and lessen deformity.

E. B. M. Vance (*Journal*, January 11, 1936, p. 53) described hand exercises, which, if carried out, would diminish greatly the number of stiff hands.

—I am, etc.,

LEONARD HILL.

St. John Clinic and Institute of Physical Medicine, Sept. 7.

A Complication of Endoscopic Resection

SIR,—In a recent case of endoscopic resection at All Saints' Hospital a complication was encountered which might be of sufficient interest and rarity to merit publication.

A man aged 74, first seen in July of this year, gave a history of frequent painful micturition and nocturia; he had had several previous attacks of "cystitis." Cystoscopy and urethroscopy revealed a fibrous prostate, only slightly resilient to fluid pressure, with marked median bar enlargement and a trabeculated bladder. Residual urine measured 4 ounces. The posterior urethra was tight, but caused no obstruction to the introduction of a Gehring urethroscope (F 25). An *x*-ray plate revealed the presence of several prostatic calculi.

Pre-operative treatment by bladder lavage with 1 per cent. silver nitrate instillations and posterior urethral dilatation (Kollmann) was carried out. Routine dilatation to Clutton 28/32 preceded the introduction of the McCarthy instrument (F 28). Mr. F. McG. Loughnane resected 5.5 grammes of tissue, removing in all fifteen to sixteen pieces, and during the operation several prostatic calculi were evacuated in the bladder wash. The resectoscope was removed only at the end of the operation. Haemorrhage was minimal. Following irrigation with Mr. Loughnane's two-way rubber catheter for forty-eight hours the urine was clear and the catheter was removed.

Convalescence was normal and apyrexial until the fifth day, when the patient complained of tenderness on the dorsum of the penis, at the peno-pubic angle, and rather to the left of the mid-line. The following day he had some loss of tactile sensation in the penis. On the seventh day I evacuated half an ounce of seropurulent fluid under considerable tension from the body of the left corpus cavernosum. The cavity appeared to be entirely limited by the sheath of the corpus, had no demonstrable connexion with the penile urethra, but contained two small prostatic calculi. On the following day the patient passed urine through his sinus as well as per urethram.

The cause of abscess formation is open to speculation, but there are two possible suggestions:

(*a*) That as a result of previous instrumentation mucosal abrasions were formed, with subsequent proliferation of granulation tissue, which may have incorporated two prostatic calculi liberated from the prostatic bed. (*b*) That abscess formation was secondary to a process of infection, extending forward from the prostate and carrying two prostatic calculi in its wake.

Mr. F. McG. Loughnane has kindly authorized publication of this interesting case.—I am, etc.,

WILLIAM MICHIE.

All Saints' Hospital, S.E.11, Sept. 7. Senior House-surgeon.

Nutrition in the Falkland Islands

SIR,—On January 16 of this year you published a very interesting article by Dr. Cheverton on an epidemic of influenza on the Falkland Islands, which made me anxious to know something more about the conditions under which our "brothers" the colonists have to live. As a result of my inquiries I have come to the conclusion that under present conditions it is impossible for the islanders to be properly fed and to be A1 people. If Great Britain is to possess colonies, then it must be on the condition that the colonists are able to lead good, strong healthy lives, or, in other words, no colony should be retained at the expense of the community, and especially of the children.

Now it appears that malnutrition is a basic factor in the human beings, cattle, and sheep of the Falkland Islands. The average islander lives on mutton, bread, potatoes, and tea. Vegetables, which are so essential for everybody and especially for growing children, cannot be grown, or, if so, with great difficulty, as the weather, with so little sunshine and so much damp, does not allow of such vegetation. The soil, as Dr. Cheverton states, is chiefly peat or clay with some sandy outcrops, whilst trees are almost *nil*, so that the country may be described as bleak and inhospitable. The acid content of the soil is high and the available amount of calcium is *nil*. Such a state of soil combined with limited sunshine is responsible for a poor state of health amongst the children, whose resistance to gastric and respiratory diseases is very low. During the last two years as many as thirty operations for appendicitis have been performed amongst a

population of 2,500. The teeth of the children from 18 months upwards are rotten, and children at school have to wear dentures. The supply of cow's milk is limited, and one cannot hope for good milk from cows fed on such poor, acid soil, although the poor beasts do their best to maintain their strength by going down to the beach to eat seaweed.

The problem for us in Great Britain, and especially for the medical profession, is whether we as a nation are justified in continuing to allow women to give birth to children under circumstances which make it impossible for them to rear them on good healthy lines? Are we to allow the breeding of fragile children for the sake of retaining a colony?

In my opinion the time has arrived when a Royal Commission should be appointed to go into the whole problem of the conditions under which so many of our brothers and sisters who live in our colonial possessions are obliged to pass their lives.—I am, etc.,

Swansea, Sept. 8. G. ARBOUR STEPHENS.

The Shopman's Finger Lick

SIR,—Is it not time for the health authorities to take serious notice of the filthy habit of many shop assistants and others, especially those employed in shops where comestibles are sold, of licking their fingers before taking paper or bags for wrapping the food. To what extent is this habit responsible for the spread of infectious diseases? For every one of such persons may well be a potential carrier. This custom does not exist in every shop, but for all that is fairly common. I have myself walked out of a shop and left the goods on the counter. The habit is filthy, insanitary, and unnecessary, and appears to be a result of ignorance and bad training.—I am, etc.,

Clifton. HUBERT C. BRISTOWE.

The Services

DEATHS IN THE SERVICES

Surgeon Captain ERNEST FITZGERALD ELLIS, R.N. (retired), died at Bridgnorth on August 15. He was educated at University College, London, and took the M.R.C.S. and L.R.C.P. in 1901. Entering the Navy soon after, he attained the rank of surgeon commander on February 11, 1915, and retired as surgeon captain on January 7, 1924. He was appointed final medical examination officer of naval recruiting at Birmingham on May 25, 1926. He leaves a widow and a daughter.

Lieut.-Colonel CHARLES WILLIAM HENRY WHITESTONE, R.A.M.C. (ret.), died at Charmouth on August 23, aged 72. He was born at Waterford on November 27, 1864, the youngest son of the late Berkeley E. Whitestone of Dublin, and was educated at Trinity College, Dublin, where he graduated B.A., M.B., B.Ch., and B.A.O. in 1887. After serving as house-surgeon at Sir Patrick Dun's Hospital, Dublin, he entered the Army as surgeon on January 31, 1891; he became lieutenant-colonel on February 13, 1913, and retired on November 17, 1919. He served on the North-West Frontier of India in 1897–8, when he took part in the campaign on the Malakand, receiving the frontier medal with a clasp; and in the South African War from 1899 to 1902, when he took part in operations in Cape Colony, the Orange River Colony, and the Transvaal, and gained the Queen's medal with three clasps and the King's medal with two clasps.

Lieut.-Colonel GEORGE THOMAS LANGRIDGE, R.A.M.C. (ret.), died at Bournemouth on August 28, aged 88. He was born at Bath on May 9, 1849, was educated at Bart's, and took the M.R.C.S. and L.R.C.P.Lond. in 1871. After acting as house-surgeon at the Seamen's Hospital, Greenwich, he entered the Army as surgeon on September 30, 1873, passing in first. At the Army Medical School at Netley he gained the Herbert prize, and was first officer to receive his commission as surgeon immediately on joining after the abolition of the rank of assistant surgeon. He attained the rank of brigade-surgeon-lieutenant-colonel on July 22, 1896, and retired on August 2, 1899. He served in the second Afghan War in 1879–80, when he took part in the Battle of Charasiah, the two expeditions to Maidau, the affairs at Karatiga, Kila Bahadur Khan, Berai-Badam, the capture of the heights at Yukht-i-Shah, and the defence of Sherpur, receiving the medal with two clasps. He also served in the first Boer War in 1881 with the Natal Field Force, and in the Transvaal campaign. He was a member of the British Medical Association for nearly forty-nine years, having joined on July 28, 1885, and resigned on December 31, 1933.

Major ROBERT HAMPDEN CLEMENT, R.A.M.C. (ret.), died at Southampton on July 23, aged 76. He was born on October 31, 1860, was educated at the Carmichael School, Dublin, and took the L.K.Q.C.P. and L.R.C.S.I. in 1883. Entering the Army as surgeon on August 2, 1884, he became surgeon-major after twelve years' service, and retired on August 3, 1904. He served in the Sudan in 1884, in the expedition up the Nile, and in the South African War in 1900, taking part in operations in the Orange River Colony and receiving the Queen's medal with two clasps. He also rejoined for service in the war of 1914–18, from August 6, 1914.

Major CHRISTOPHER JAMES HEALY, R.A.M.C. (ret.), died in Dublin on June 25, aged 72. He was born in Dublin on October 21, 1864, and was educated at Trinity College, Dublin, where he graduated M.B., B.Ch. in 1887. After filling the post of house-surgeon at the Adelaide Hospital, Dublin, he entered the Army as surgeon-captain on July 28, 1891, became major after twelve years' service, and retired on July 28, 1911. He served in the Tirah campaign on the North-West Frontier of India in 1897–8, when he took part in the Mohmand campaign (medal with clasp), and in the operations in the Bara Valley (clasp); and in the South African War in 1901–2, in the operations in Cape Colony, receiving the Queen's medal with three clasps.

Major THOMAS EDWARD MOLES, R.A.M.C., died at Cairo on July 12. He was educated at Belfast University, where he graduated as M.B., B.Ch., and B.A.O. in 1925, immediately afterwards entering the R.A.M.C. He became major on January 26 last.

Universities and Colleges

LONDON HOSPITAL MEDICAL COLLEGE

The second open entrance scholarship, value £100, offered by the London Hospital Medical College, has been awarded to E. O. Williams of Exeter College, Oxford.

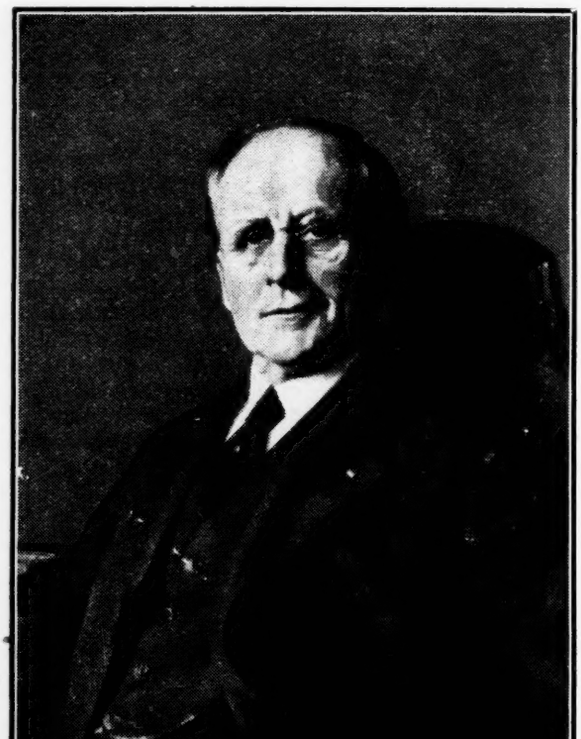
The directors of the Commonwealth Fund of New York have created a number of Commonwealth Fund Service Fellowships, tenable at American universities, not more than five of which will be offered in 1938 to persons holding appointments over-seas under the British Government, the Government of India, or the Government of a British Dominion, Colony, Protectorate, or Mandated Territory. Candidates must be of British descent and not have attained the age of 35 on September 1 of the year of award. They must submit a definite scheme of research work or advanced study to be carried out during their residence in the United States, and must produce evidence of their capacity to pursue it with advantage. Fellowships are tenable for a minimum period of fifteen months and a maximum period of twenty-four months, which will run from the date of departure from the country in which the Fellow is engaged in Government service to the date of his return. Applications, on the prescribed form, must reach the secretary, Commonwealth Fund Fellowships, 35, Portman Square, W.1, by February 1, 1938.

Obituary

GEORGE H. SIMMONS, M.D.

Editor Emeritus, *Journal of the American Medical Association*

We announced last week with deep regret the death on September 2, in Chicago, of Dr. George H. Simmons, who, as Editor of the *Journal of the American Medical Association*, for twenty-five years (1899–1924) rendered outstanding service to medical literature, to medical education, to medical organization, to science, and to the general public welfare. In June, 1924, during the annual meeting of the American Medical Association, he was entertained at a banquet and presented with his portrait painted by Arvid Nyholm: an account of the proceedings appeared in the *British Medical Journal* of September 13 of that year. This valedictory dinner, attended by 500 of the leading figures in American medicine, was regarded as the highest tribute that had been paid to a member of our profession in the United States. To Dr. Simmons more than to any man must be attributed the growth of the American Medical Association and the development of its famous *Journal* during the present century.



George Henry Simmons was an Englishman by birth and lineage. A son of George Simmons, he was born on January 2, 1852, at Moreton - in - Marsh, Gloucestershire, and went to school there. After the death of his parents he lived with his maternal grandfather, Richard Clifford, of the Rye Farm, Sezincote. In 1870 he decided to try his fortunes in America, and entering as a student of the University of Nebraska graduated M.D. from the General Medical College and the Rush Medical College of Chicago. He first practised at Lincoln, Nebraska, and was secretary of the Nebraska State Medical Society from 1896 to 1899. He was the founder of the *Western Medical Review*, and its success no doubt led to his appointment to be Editor of the *Journal of the American Medical Association*, which then had a circulation of about 8,000. The *J.A.M.A.* at that time, in the words of Dr. William J. Mayo, was "mediocre and without much influence, either within or without the medical profession. Its standard for acceptance of original contributions and advertising matter was without perspective or ideals." Under Dr. Simmons's editorship the circulation increased more than ten times, and the influence and prestige of the *Journal* grew in proportion. A few months after his appointment as Editor he was also made Secretary of the Association, and continued in this joint post until 1911, when he resigned the secretaryship and became Editor and General Manager.

In every department of his work George Simmons displayed energy, vision, resource, and leadership, but always with personal self-effacement. The *Journal of the American Medical Association* stands as a monument to his executive ability, his keen sense of justice, and close adherence to principle. Under his inspiration it has long stood for the highest in medical science, in medical education, and in professional ethics. Through it he led the fight against quackery and all forms of pseudo-medical fraud, and its rapidly increasing revenue under his direction enabled the Association to carry on a constructive programme of much value to the medical profession and the public. One of its greatest achievements was the weeding out of the inferior medical schools of former days, whose existence had been a reproach to the profession of the United States.

The testimonial dinner in Chicago on June 9, 1924, when he resigned the editorship of the *Journal of the American Medical Association*, gave an opportunity for public acknowledgement of the debt of American medicine to Dr. Simmons. Striking tributes to him and his work were paid by Dr. Harvey Cushing, Dr. Frank Billings, Dr. William J. Mayo, and Dr. William S. Thayer, and by others who could speak with intimate knowledge of his services as journalist, administrator, and reformer. The same note of admiration and affection ran through all the speeches. In his characteristically modest reply Dr. Simmons said that he had always believed and acted on the principle that the American Medical Association was primarily a scientific organization, with for its chief function the advancement of medical science and practice, and that all its efforts must be directed to the common good of the profession and the public. But, he added, while it was reasonable to boast of what had been done, the task was never ending.

After his retirement from active work, to live in a house on the sea coast of Florida, Dr. Simmons continued to keep a wise and watchful eye on the progress of medicine and the course of medical politics at home and abroad. He spent much time in travel and kept up his custom of paying visits to England in the summer. He was present as an honoured guest at the centenary celebrations of the British Medical Association in 1932, and on his last visit in 1936 called at our headquarters in Tavistock Square to renew old acquaintanceships but did not feel equal to the fatigue of attending the Annual Meeting at Oxford. He was then in his eighty-fifth year, and the infirmities of old age were beginning to tell; but nothing could impair his calm and statesmanlike outlook upon the medical scene or his kindly consideration for those who had the privilege of his friendship.

SIR GEORGE POLLARD, M.D.

The death of Sir George Herbert Pollard on August 27 removes a member of our profession who took an active part in public affairs. Born on October 20, 1864, he studied medicine at the University of Edinburgh, graduating M.B., C.M. in 1886 and taking the M.D., with honours, in 1890. After three more years at Edinburgh, where he acted as assistant to the professor of midwifery, he was called to the Bar by the Inner Temple, and on returning to his native town of Southport was elected to the local bench of magistrates. In 1896, the Diamond Jubilee year, he was mayor of Southport, and after two unsuccessful contests was elected in 1906 M.P. in the Liberal interest for the Eccles Division of Lancashire, sitting in the House of Commons for that constituency until 1918. During the war he was a medical adviser to the Ministry of Munitions on poison gas and chemical warfare, and a member of the Ministry's medical board. He received the honour of knighthood in 1909.

Sir George Pollard had been a member of the council of the London Dermatological Society and a vice-president of the Industrial Diseases Section of the Royal Institute of Public Health. He was also for some years a member of the Lancashire County Council. He married Charlotte Elizabeth, daughter of the late Thomas Butterworth of Burnley, who survives him.

Medical News

The annual dinner of the St. George's Hospital Medical School will be held on October 2, at 7.45 p.m., at the May Fair Hotel.

The annual dinner of past and present students of Charing Cross Hospital Medical School will be held at the Café Royal, Regent Street, W., on Saturday, October 2, at 7.30 for 8 p.m.

The annual dinner of the Westminster Hospital Medical School will be held at the Park Lane Hotel on Saturday, October 2, at 7.30 for 8 p.m.

The inaugural address at the London (Royal Free Hospital) School of Medicine for Women (University of London) will be delivered by Mr. H. L. Eason, C.B., C.M.G., in the Albert Levy Hall, Royal Free Hospital, on Friday, October 1, at 3.30 p.m.

The fifteenth annual meeting of the Academy of Physical Medicine will be held at the Hotel Walton, Philadelphia, on October 19, 20, and 21. The Academy, which is international in scope, will present a scientific programme based on reports of the most recent research and the newer techniques in physical medicine as they relate to the practice of the various specialties. In addition to the lectures, demonstration clinics will be held at the hospitals of the University of Pennsylvania, Jefferson Medical College, and Temple University. A copy of the programme may be had from Dr. William D. McFee, 41, Bay State Road, Boston, Mass.

The annual general meeting of the Invalid and Crippled Children's Society will be held at the Invalid and Crippled Children's Hospital, Balaam Street, Plaistow, E.13, on Tuesday, September 21, at 11 a.m., under the presidency of Sir Reginald Kennedy-Cox. A further £5,000 is still required for the proposed extensions of this hospital.

The two-hundreth anniversary of Bristol Royal Infirmary will be celebrated on October 22. At 5 p.m. members of the staff, students, and nurses are invited to inspect the alterations in the buildings and equipment, tea being provided. In the evening there will be a dinner at the University Union (tickets 13s. 6d., exclusive of wines), and it is hoped that as many as possible of the Infirmary's friends and supporters, with guests, will attend. In commemoration of the event a bronze replica of the Infirmary medal is to be issued. All who intend to be present at either or both of these ceremonies should communicate with the Secretary not later than September 30.

An international congress of the history of sciences will be held at Prague from September 24 to 28.

The sixtieth international postgraduate course will be held in Vienna from September 27 to October 10. Special reference will be made to advances in therapeutics. Further information can be obtained from the Kursbüro, Allgemeines Krankenhaus, Alsterstrasse 4, Vienna.

The forty-sixth French Congress of Surgery will be held at the Paris faculty of medicine under the presidency of Professor Gregoire from October 4 to 9 when the following topics will be discussed; pathogenesis and treatment of the immediate and late complications of embolism, pathology and treatment of recent burns of the skin, indications for operation and orthopaedic treatment of simple fractures of the leg and their results. Further information may be obtained from M. A. Vulliod, 12, Rue de Seine, Paris (6e).

The fifth congress of the Association of Scientific Photography and Cinematography will be held in Paris at the International Exhibition from October 7 to 9. Details of the programme may be obtained from Dr. C. Claoue, Rue Scheffer 39, Paris XVI.

A conference on the problem of malnutrition organized by the Council of Action for Peace and Reconstruction will be held in the Memorial Hall, Manchester, on October 2. The secretary of the conference is Miss Hilda Buckmaster, warden of the Ellis Llwyd Jones Hall.

The annual meeting of the German Dermatological Society will be held at Stuttgart from September 18 to 22, the chief subject for discussion being the significance of cutaneous tests.

A home for the treatment of post-encephalitic Parkinsonism is being endowed by Sir Alfred Law at Sparthfield, formerly the residence of the late Sir James Jones. The home will provide accommodation for thirty patients, and those who cannot afford fees will receive free treatment. It is understood that the benefactor decided to endow the home as a result of the work of Dr. C. C. Fenwick and Dr. Neuwahl on what has become known as the Bulgarian treatment of post-encephalitic Parkinsonism.

The September issue of the *Edinburgh Medical Journal* is a special education number.

The issue of *Paris médical* for August 7 contains an illustrated rèview of Dr. Lévy-Valensi of the history of French medicine as portrayed at the Paris Exhibition.

September 7 marked the centenary of the birth of Professor Hermann Schwartze of Halle, one of the pioneers of otology in Germany, who has given his name to the mastoid operation.

Dr. C. L. Park, Director of the League of Nations Far Eastern Health Bureau, is on his way to Hong Kong to confer with the authorities there on the measures to be taken in connexion with the outbreak of cholera.

Lieut.-Colonel E. D. Caddell, *M.C.*, late R.A.M.C., has been appointed, and has now taken up his duties, as secretary-general of the National Association for the Prevention of Tuberculosis, at Tavistock House North, Tavistock Square, London, W.C.1.

In Austria women number 665, or 9 per cent., of the medical practitioners, 138, or 13 per cent., of the dentists, and 314, or 19 per cent., of the pharmacists.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS should be addressed to the Advertisement Manager. Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House, Tavistock Square, W.C.1.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

The TELEGRAPHIC ADDRESSES are
EDITOR OF THE *BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.*
SECRETARY, *Medisecra Westcent, London.*

The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh;* telephone: 24361 Edinburgh), and of the Office of the Irish Free State Medical Union (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin;* telephone 62550 Dublin).

QUERIES AND ANSWERS

Lymphatic Oedema

"G.P." writes: I should be much obliged for information as to the treatment of this case of lymphatic oedema. The patient is a woman aged 35, both of whose ankles and legs swell very much on walking even a moderate distance; no pitting on pressure. The oedema subsides on resting for a time. She becomes very short of breath on slight exertion. Her height is 5 ft. 2 in. and her weight 12 st. 3 lb. In spite of a very small appetite and avoidance of everything that might put on weight she is getting stouter. Thyroid has been tried, but without benefit so far. The patient suffers from menorrhagia monthly. She used to work in a canteen, standing for twelve hours a day.

Facial Hirsuties in the Female

"RAYCUS" writes: Will any reader kindly give experience and details of treatment of facial hirsuties in the female by endocrine extracts?

Otitis Externa from Swimming Pools

Mr. ALFRED MERRIN, in reply to Dr. R. S. Gilchrist (*Journal*, August 21, p. 401), writes: Some years ago you published a letter from me in which I recommended the use of fibrous plasticine for ear plugs. I have used these plugs myself, and have found that they absolutely prevent water from entering the ears when swimming or diving. If Dr. Gilchrist will write to "Harbutts," 56, Ludgate Hill, London, E.C.4, enclosing 8d., and asking them to send a tin of fibrous plasticine, he will receive sufficient to last him many years. A portion of the plasticine should be fashioned into the shape of a tack and then inserted in the ear, the point foremost and the head well flattened against the ear. Pressure with the forefinger behind the ear will loosen the plug sufficiently to enable it to be withdrawn. The same plug can be used indefinitely.

Mr. L. A. RIDDELL (Cornwall) writes: When living on a little tropical island some years ago I became afflicted with a painful otitis externa due to frequent swimming in the open sea. Consultation of Castellani's *Tropical Medicine* suggested that it was a mycotic infection due to repeated maceration of the skin of the external ear. The treatment suggested was the application of "nascent iodine," formed (it was said) by the simultaneous use of sodium iodide and hydrogen peroxide locally. For some reason or other I tried to simplify the treatment and used a 1 in 3 watery dilution of tr. iod. mitis. This was applied with thin wisps of cotton-wool on a fine probe—the use of any stouter instrument being precluded by the great swelling of the skin of the meatus, which is a noticeable feature of the condition. The treatment is painful at first but it gives speedy relief, and I treated successfully not only myself but several others. Swimming can soon be resumed, and any relapse (which is very common once the condition has been acquired) can be nipped in the bud as a rule by just one application overnight whenever the tell-tale itching or wetness of the meatus appears.

Income Tax

Loss on Professional Year

"FORD," writing from the Irish Free State, explains that he is allowed cost of replacement of a car instead of depreciation. If that allowance exceeds the profit, can a refund be claimed for past years?

*** No. The cost of replacement is regarded as a professional expense of the year in which the car was replaced and cannot be given effect as regards prior years. The loss—that is, the excess of the cost of replacement over the year's earnings—can, however, be carried forward against future years.

Honorarium

"A. B. C." has been acting as honorary consulting surgeon to a hospital, receiving annually a gratuity of £50, and has understood that acceptance of the "gift" did not in any way prejudice his honorary position. Is the £50 liable to income tax?

*** In our opinion—yes. The scope of the charge under Schedule E is wide: tax is assessable in respect of "every public office or employment of profit," and the section includes as income "all salaries, fees, wages, perquisites, or profits whatsoever." "A. B. C." undoubtedly holds an office or employment, and the honorarium appears to be within the above description. The £50 is apparently not specified in any contract of office, but the fact that it is paid annually, and that the office was accepted and held in those circumstances, takes it out of the category of a "gift."

LETTERS, NOTES, ETC.

Buccal and Lingual Ulcers

Mr. HERBERT TILLEY, in replying to "Puzzled" (*Journal*, September 11, p. 564) writes: In the absence of any description of the ulcers one presumes that they are discrete, pale, superficial, and very sensitive to touch or even to the passage of liquids and semi-solid foods. Furthermore, perhaps it may be assumed that the ulcers have failed to respond to general treatment and to such local applications as silver nitrate, copper sulphate, etc. If these surmises be correct, it is more than probable that the lesions are caused by a deficiency of vitamin A and possibly D, in the patient's ordinary dietary. During the past two years three similar cases have come to notice, and, like "Puzzled's" patient, mine were also females who had proved equally resistant to medicinal and climatic treatment. But each of them responded quickly to preparations containing cod- or halibut-liver oils which are particularly rich in the first-mentioned vitamin. In addition to these remedies, the patients were urged to take an ample supply of egg-yolk and fresh green vegetables. In two of my patients intramuscular injections of campolon (Bayer)—a highly concentrated extract of cod and halibut oils—were followed by complete disappearance of the ulcers within three days! It may not be without significance that the four cases with which this note is concerned were females, and maybe their susceptibility to "buccal and lingual ulcers" is due to their addiction to the carbohydrate elements of foodstuffs, especially when presented in their most attractive forms and consumed frequently with ample quantities of tea. Man cannot live on bread alone!

Corrigendum

Cork Street Fever Hospital, Dublin

Our attention has been drawn to the omission of reference to Cork Street Hospital in the summary of Dublin teaching hospitals in our Educational Number (September 4). The hospital, founded in 1801, is one of the oldest fever hospitals in the British Isles, and is the largest teaching fever hospital (280 beds) in the Irish Free State. It is recognized by the National University, Trinity College, and the Irish Conjoint Board for undergraduate and postgraduate instruction, classes for medical students being held each term, and for D.P.H. students during the winter term.